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NOTICE.

Secretaries of Building Societies, and other Associations for Provident Investment, will much oblige the Author, by forwarding to him, from time to time, a copy of any new Rules, Balance Sheets, Prospectuses, or other printed documents they may issue.

8a, Waterloo Place,
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VOLUME I.

PRINCIPLES AND PRACTICE

OF

BENEFIT BUILDING SOCIETIES,

AND

LOCAL ENTERPRISE ENCOURAGEMENT COMPANIES,

WITH

An Alphabetical Digest of the Law relating thereto, and numerous Tables.

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PRELIMINARY REMARKS TO VOL. I.,

ON BENEFIT BUILDING SOCIETIES, &c.

I.—Our larger work on Associations for Provident Investment having passed through several editions, and being now out of print, it has been suggested by solicitors and others of experience, that a smaller publication, introducing the reader to the more practical portions of that Treatise, would be found of value.

Opportunity has been taken to insert a concise Alphabetical Digest of the leading Law Cases on the subject of Benefit Building Societies, not so much with the view of furnishing a Law Book as with the object of giving the general reader such an idea of the present state of the Law of Building Societies, as will enable him to estimate the importance of the Amendments necessary therein.

II.—In the first place, consolidation and codification are very much required. The unfortunate provision of the Building Societies Act of 1836 (*s.* 4) by which all the clauses of the old Friendly Societies Acts are incorporated with it, but only so far as they are applicable to the purposes of Building Societies, has introduced much complication and uncertainty. Those Acts have since been all repealed as far as regards Friendly Societies, but their obsolete and inconvenient provisions still apply to Building Societies. Thus the rules of Building Societies still require to be deposited with the Clerk of the Peace, while those of Friendly Societies have merely to be deposited with the Registrar. Again, till lately, that excellent and learned official was of opinion that the dissolution of Building Societies might be arranged according to the plan prescribed for Friendly Societies by the old Act of 10 Geo. 4 (1829): but recent decisions would seem to show that that clause is one of those not "applicable to the purposes of Building Societies," which are bound to adopt the costly process of registration and winding up as Public Companies under the Act of 1862.

III.—It is also an imperfection in the Building Societies Act that the *Limit of Shares* is fixed at £150, and that of Subscriptions at £1 a month. If the intention of the framers of the Act was to limit the whole interest that a member might hold to £150, which is quite possible, however absurd, that intention has been defeated by the very proper decision in *Morrison* v. *Glover* (*see p.* 89) that a member may hold any number of shares, provided the amount of each share does not exceed £150. In general, the greatest present value advanced on a share of the amount of £150 in a Terminating Society would not exceed £70 or £80, and with so small a sum scarcely a hovel could be purchased.

Again, by * Section I. of the Bankruptcy Law Consolidation Act, 1849, all previous enactments giving a priority to particular creditors over a bankrupt's estate were repealed, and this put an end to the privilege of *prior claim* possessed both by Friendly and Building Societies under the 4 & 5 Wm. IV., c. 40. A later section of the same Act (167) restored the priority as far as regards Friendly Societies, but by an oversight (for it is hardly likely that the Legislature intended it) omitted to do so with regard to Building Societies.

IV.—Provision should be made for enabling a Building Society, under certain restrictions, to *Borrow money*. Until within the last few years, the Registrar did not object to certify Rules which conferred a power to borrow on the Trustees or Directors of a Society:—but having obtained an opinion from Lord Westbury, when Attorney General, that such Rules were not "in conformity with law", Mr. Tidd Pratt ceased to certify them. Lord Westbury, no doubt, considered that it was not the intention of the Legislature that a Society should pledge the credit of its members for money borrowed, even for the extension of its business:—but it is evident that a well constituted Building Society would be very materially assisted, especially in its earlier years, before the Investing Subscriptions have amounted to any large sum, by being able to take sums on deposit upon fair conditions as to notice of withdrawal, &c. As the whole funds of a Building Society are invested in Loans upon tangible

* [On this point the reader should consult the very valuable manual on the Law of Building Societies by our learned friend, Mr. W. Whitaker Barry, of Lincoln's Inn. As several passages of his work are identical with portions of this Treatise, it may be desirable to explain that they were incorporated by Mr. Barry from the early editions of this work with our consent.]

property, depositors have the very best security for their money, and Bankers and others are in ordinary times quite willing to lend to Building Societies at rates as low as 4½ or 5 per cent. The Societies lend again to their members at 6 or 7 per cent, and are thus able to make an additional margin of profit for their Investing Shareholders. With or without legal authority, therefore, Societies gladly accept deposits; and in one large Society in London, the deposits received in a single year have reached the large amount of half a million sterling. Under the existing Law, the Directors who are parties to the transaction are of course personally responsible, should the funds of the Society not enable them to repay the Loan, and, as the profits go, not to them, but to the general body of members, the Law in this respect certainly requires amending.

At the same time, there is no obstacle, under the present law, to receiving Deposits in the form of Shares; for which purpose we prepared the following Clause, which is adopted by many recently formed Societies:—

"The shares shall be of the ultimate value of £ each, realizable by a monthly payment of , and of such other amounts, and realizable in such periods of years, and in consideration of such single or periodic payments, as the Board of Directors from time to time deem fit."

It will be observed that the deposit receipts, being in the form of Paid-up or Realized* shares, the restriction is met of Section 1 of the Act as to the payment of dividends.

By way of example:— Suppose £25 to be tendered to a Building Society on deposit for the term of three years at 4½ per cent. interest, the Society would issue a Paid-up Share Receipt for £25, reciting that it was withdrawable at the end of the agreed period, but bearing interest in the meanwhile at 4½ per cent. by way of Bonus.

V.—When the Building Societies Act was framed (1836), the system of *Freehold Land Societies* had not been invented (1847): and the Act, therefore, contains no provisions such as are required to meet the peculiar circumstances of these Societies. Many of them have, in consequence, since the passing of the Limited Liability Acts, (1856, 1862)

* [By some Societies, these are termed Preference Shares: by others, Debenture Shares.]

become incorporated as Joint Stock Companies:—and those, which continue to act as Freehold Land Societies under the Building Societies Act, do so under circumstances of personal responsibility to the Directors and risk of loss which hamper their operations.†

In any future Act, therefore, Clauses should be introduced enabling a Society to purchase Land in gross, for allotment among its members at wholesale prices, and to permit of the building of school rooms, &c., at the general cost of the members having allotments, in connection with Suburban Villages so formed.

VI.—It is not alone, however, from legal difficulties that Freehold Land Societies have suffered. The apparent success, which attended the operations of a few of the earlier and more cautious Societies, created a popular current in favour of Land Investment. This led to the formation of nearly as many Freehold Land Societies as there were previously Benefit Building Societies. First success is not, however, always followed by caution; and bubble associations speedily came into temporary existence, involving errors only veiled by a long and glittering array of names of members of both Houses, which are rarely wanting when political constituents are to be pleased or conciliated. Indeed associations are frequently brought into life by the success of some principle under special circumstances, but a fatality seems to attend those designed for the Industrious classes; thus, ere long, objectionable features have been introduced, and imperfections become manifest in Freehold Land Societies, which are productive of dissatisfaction to the members, and of regret to the admirers of the system. Very many Societies have been founded on such unsound principles, and with such disregard to practical correctness in their Rules, that the reverse of advantage has arisen to the Borrowers from their purchases, or to Investors from their deposits. On the other hand, even in those Freehold Land Societies that were established with a political object, and whose operations have been of great magnitude, the members appear to have forgotten their original aim, and

† [Notwithstanding these disadvantages, Freehold Land Societies have made remarkable progress. There are stated to be in Birmingham six, with an aggregate of 14,973 members, and a Capital exceeding £500,000. The Conservative Land Society has bought 70 estates exceeding 500 acres in extent. The National Freehold Land Society has accumulated a Capital of £689,575, and works in conjunction with the British Land Company, which has an additional Shareholders' Capital of £140,000.]

are now only ambitious of the pecuniary profits which the assumed success of the society induces the Directors to declare.

VII.—A speculation in land, moreover, arose, which, from injudicious management, led Societies to compete with each other, and tended extravagantly to raise the price of land in various parts of the kingdom. It is even affirmed that persons, having estates to sell, resorted to the most influential Directors of certain Societies and asked them to act as their agents in disposing of the land to the members, however indifferent its situation or nature.

Although we can scarcely believe that, in the truly respectable Societies, land can have been allowed to be sold at unfairly high prices, yet it is a fact, that, from the species of speculative mania which existed unchecked by the Directors, large tracts of land, valuable only for agricultural purposes, were purchased and cut up into uselessly small allotments, for which one set of members, with no reasonable prospect of turning them to account, were unreflectingly led to give such high building prices as enabled the Society to declare considerable profit to the other members. Instances, in fact, constantly occurred of purchases being made by persons solely in the hope of a resale at an advanced price.

A case came under our attention, where an allotment of badly situated, ill-drained land, several feet below high water mark, and worth a year before scarcely £30 the allotment, was purchased for a Society, and apportioned to the members at £55 per lot; and yet other parties were found, attracted by illusive statements, who, without visiting the locality, offered £15 more, in the expectation of large profits to arise from building thereon.

Little difference in fact can be observed between the operations of some Societies, and the results of the mania for railway shares.

Again, where the land is intrinsically advantageous, the allotments are frequently valueless to the allottees from their being too far from their places of residence to be made available. Good building land also remains unused, or is let at the comparative low price of pasture or grass land, because the allottee has not the money to build thereon, and most of the older Freehold Land Societies cannot make advances for that purpose.

VIII.—The relation of Building and Freehold Land Societies to the *Elective Franchise* affords another instance in which amendment of the

law is to be desired. The Court of Common Pleas has decided (*Copland* v. *Bartlett*; *Beamish* v. *Stoke*; see page 95) that a borrower from a Building Society must possess land of an annual value exceeding his annual repayments by 40s. in order to be entitled to a vote for the county in respect of it. This is a disability which does not affect borrowers by private mortgage. A statement put forward by the Halifax Building Society sets this forth very clearly :—

"A is the owner of Real Property, producing £6 10s. a-year. He is *not* a Member of a Building Society, but mortgages his property to a private person for £60, upon which he has to pay 5 per cent. interest, or £3 per annum. A, having 40s. clear, is entitled to be put on the Register (although his debt is unredeemed).

B is also the owner of Real Property, producing £6 10s. a year. He is a Member of a Building Society in respect of one share, upon which he has to pay to the Society subscriptions for a term of years amounting to £6 10s. per annum, for principal and interest. As the entire payment exhausts the income from the property, B is held not entitled to be put on the Register," though, as a portion of B's payments consists of return of the capital lent, he possesses a larger actual interest in the property than A does in his.

IX.—The following further amendments of the existing law are desirable—

1. To enable a Building Society to transfer its business to another, and to facilitate amalgamations of Societies by that means as permitted to Friendly Societies by the more recent acts..
2. To enable the Registrar to nominate or confirm the appointment of some proper person, to act as Receiver of the repayments of the unexpired mortgages of a Society that desires to discontinue its business.
3. To enable a Society to change its seat of business from one county to another.
4. To allow of advances being made on real or leasehold security, with the collateral security of policies of assurance.
5. To cause Societies to deposit with the Registrar yearly reports and balance sheets, and to comply with any orders of Parliament for returns, under penalties in case of neglect.

X.—The passing of the Companies' Act, 1862, has created so many facilities for effecting the objects of Building and Investment Societies and other advantageous purposes of local improvement and development in country towns, by means of Joint Stock Companies, that we have

thought it desirable to add some practical suggestions and a form of prospectus for establishing a system of *Local Enterprise Encouragement Companies* on the Credit Mobilier principle. We pointed out the advantage which would attend the application of this principle to local wants as far back as the year 1852, when we devised the plan now again set forth in the present work; and it may be remarked that the warnings, we then put forward (repeated in the Treatise on Savings Banks, 1860) as to the danger attending large central combinations of the kind in the metropolis as distinguished from local organisations, have been amply justified by recent disasters in the financial world.

XI.—With this subject is intimately connected that of *Crédit Foncier* or *Land Credit Associations*, the principle of which has been found beneficial in Prussia, Poland, Bavaria, Hanover, and many of the smaller German states. It was introduced into France by Napoleon III., in 1852, when President of the Republic, and is now recognised by statutes in England (1863-4-5).

Its object is:—firstly, to mobilize the soil, so as to give it a transferable species of credit which can be used and transferred like a bill of exchange; and secondly, to facilitate the liquidation of mortgages on land by gradual instalments.* The reader, who is interested in the subject, should peruse the *Mémoire* (1848) of M. Wolowski on the organisation of the Crédit Foncier, and the Manuals of M. Le Hir (1852) and M. Emile Berés (1853), which contain much valuable information as to Land Credit Banks. The system of the Crédit Foncier of France, which we personally examined in 1853, did not for a long period meet with the success it deserved. This arose mainly through the opposition of the provincial notaries, whose profits in conducting advances on land it tended to diminish. Of late, however, its business has experienced remarkable extension, and in the single year 1863 its mortgage loans for long terms of years amounted to more than £4,300,000 sterling, producing a net profit for the year of £200,000, of which a large portion was very prudently added to the Reserve Fund, the directors quoting the maxim that "large reserves make solid companies." The report of M. Josseau to

* [M. Albert de Montry, in his evidence before the Conseil d'Etat, and in a valuable brochure, "*Du Pret et du Crédit Viager*," proposes to supplement the operations of the Credit Foncier by a system of mortgages at rates of repayment fixed to cease at the death of the borrower, on our plan of Freehold Assurance (1852). See Treatise on Associations for Provident Investment.]

M. Dumas, Minister of Agriculture (1851), should be consulted; as also M. Royer's work on the Institutions for Land Credit in Germany, and the admirable suggestions of Mr. Vincent Scully, for a new Land System.

Mr. Scully remarks that it is a most idle illusion to imagine that a sound measure to facilitate Transfer of Land can ever tend to its undue subdivision, to give an improper impulse to democracy, or to affect injuriously the aristocratic element of these kingdoms. Such a measure would produce the very opposite results. Should the occasion arise, it will be easy to demonstrate that the free Sale and Purchase of Land can lead to no over-population of a country, or *morcellement* of its farms. It would have a highly preservative tendency, and would stabilitate a territorial proprietary, whilst admitting all industrious classes into either a present or a prospective participation in the ownership of Land.

Mr. Scully's suggestions have recently been partially carried into effect by the passing of the "Mortgage Debentures Act," 1865, by which companies possessing or dealing in land are enabled to issue debentures, and a system of registration is provided: but the restrictions which the legislature thought fit to attach to this valuable privilege are so onerous that as yet it is believed only one company has been able to avail itself of the Act.*

XII.—A model set of Rules suitable for Building or Freehold Land Societies will be found in our "Treatise on Copyhold and Church Lease Enfranchisements," 4th Edition, 1859. The cognate subjects of *Tontine Associations* and *Emigration Societies* are considered at length in our larger "Treatise on Associations for Provident Investment."

XIII.—The power of Association, which, in the present day, is becoming so well understood, is applicable, of course, to numerous other

* [The following are instances of power to grant Land Loans in force before the passing of the general Act above mentioned:—In ENGLAND; Land Drainage Company's Act, 12, 13 Vict. c. xci.; Copyhold Enfranchisement Act, 15, 16 Vict. c. 51; Land Improvement Company's Acts, 16, 17 Vict. c. cliv. and 1864; Land Loan and Enfranchisement Company's Act, 23 & 24 Vict. c. clxix.—IRELAND; Land Drainage Act, 5, 6 Vict. c. 89. s. 100; Farmer's Estate Society's Act, 11, 12 Vict. c. cliii.; 14, 15 Vict. c. cxliii.; Sir J. Romilly's Securities for Advances Bill of 1850.—CHANNEL ISLANDS; See Duncan's Guernsey, p. 286; Berry's Guernsey, p. 177; Plee's Jersey, p. 251; Le Cras's Laws of Jersey, p. 324; V. Scully on the Channel Islands, p. 64.—EUROPE; See "Land Credit Companies of Prussia," by W. Pollard Urquhart, M.P. (1853); Jacob's Tour of Poland (1826); and as to Belgium, Hamburgh, Frankfort, and parts of Germany, see evidence of Mr. James Stewart and Mr. John Stuart Mill, before the Commons Savings' Committee of 1850.]

purposes besides those discussed in this Treatise; and we have endeavoured, in our other works, to explain the principles upon which other associations should be established or conducted.

The arguments, adduced in support of our views respecting the institutions specially examined in this part, are, however, applicable to any other, in which it is desired to settle upon a sure basis the relative position of its members. The truth of the following remarks of the eminent philosopher, Rossi, is now recognized.

"L'association est un instrument, une arme de la plus haute puissance."....."Le progrés social ne peut consister à dissoudre toute association, mais à substituer aux associations forcées, oppressives, des temps passés, des associations volontaires et equitables."....."Tout peuple, chez lequel peut se réaliser cette haute combinaison de la puissance individuelle avec le principe d'association, est entré definitivement dans la carriére de la *Civilisation Progressive.*" *

XIV.—In conclusion, we desire to impress upon our readers, that the establishment of such associations and companies as are considered in the present work, can only lead to satisfactory results, and avoid reacting, by failure, as a check upon the continuous energy and forethought of the industrious classes, through the managers constantly bearing in mind, that, even when the broad principles of a system are definitively settled, the details are far from being unimportant; that it is quite possible to ruin the most carefully constructed plan by committing apparently trifling errors in its execution; that the inconsistencies and objections to many of the existing associations, which are examined in this Treatise, are easy to obviate, as their prevention lies entirely within the province of the parties who are charged with the management of the society's operations; and that our object is not only to expose errors, but to direct attention to the principles of the plans themselves, as containing materials for improvement, which may be made beneficial to the community at large. With the lamented economist, M. Frederic Bastiat, we would say "†Aux douleurs de la concurrence l'humanité apprend, chaque jour, á opposer deux puissants remèdes: la Prevoyance, fruit de l'experience et des lumieres, et l'Association, qui est la Prevoyance Organisée."

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* *Cours d'Economie Politique,* Tome 2.

† *Harmonies Economiques.*

PART I.

ON BENEFIT BUILDING SOCIETIES.

'*The subject of this work has presented difficulties of a complicated character, from the various phases under which the peculiar defects of individual societies appear. The task has, however, been lightened by the reflection, that, although it cannot be expected that this effort, to place them upon a more rational and secure footing, will meet with the success of wholly obviating errors for the future, yet a most important end will at once be obtained, if the attention of the Patrons, Trustees, Directors and other officers of many of these institutions, be awakened to the sense of the grave moral responsibility incurred by them, in allowing their names to be connected with schemes, which, while professing to benefit, do but cause injury to those, for whose good they were designed,—to individuals not of equal information and position with themselves, but a class remarkable for the simple faith with which they believe in any statement, that is sanctioned by the countenance of their superiors.*'—[Extract from preface to first edition.]

CHAPTER I.

ART. 1.—AMONG the remarkable features of the present age, Benefit Building Societies occupy a leading position. Their increase, during the last thirty years, not only in the metropolis, but in every part of the kingdom, has been steadily progressive, so that it has become a matter of importance to many and of interest to all, correctly to understand their object and the true principles on which they ought to be founded. This information is the more desirable, as the amount subscribed to these associations is already so large, that they may be said to have engaged in their operations a considerable portion of the investing capital of the industrious classes. But, although they have received this extensive support, it is painful to find, that many societies are guided by principles, which cannot, either in theory or practice, justify the hope of their realising the advantageous results held out as an inducement to parties to become members.

That the principles of Building Societies should be erroneous, and yet that their popularity should be widely extended, may be ascribed to two causes. As yet, but few persons of sound mathematical knowledge or experience in calculations have turned their attention to the subject, and the societies hitherto formed have been deprived of that basis of science

and just reasoning, which alone can ensure the prosperity of this or any similar kind of speculation. On the other hand, the members of these associations have, in general, been led to expect from them an unreasonable degree of benefit—a false impression, which has been shared even by persons of the more educated orders.

2.—A Benefit Building Society, when properly constituted, is a species of joint stock association, the members of which subscribe periodically, and in proportion to the number of shares they hold, different sums into one common fund, which thus becomes large enough to be advantageously employed by being lent out at interest to such of the members as desire advances; and the interest, as soon as it is received, making fresh capital, is lent out again and again, so as to be continually reproductive. Large sums may be raised in this manner; for example, if 1000 shares were subscribed for at 10s. per month per share, the amount in one year would be £6000, which, month by month as received, might be advanced to any members, who wish to become borrowers. The payments of BORROWERS are so calculated as to enable them to repay, by equal monthly or less frequent instalments, within a specified period, the principal of the sum borrowed and whatever interest may be due upon it throughout the duration of the loan. The other members who have not borrowed, and who are generally called INVESTORS, receive, at the end of a given number of years, a large sum, which is equivalent to the amount of their subscriptions with compound interest accumulated upon them.

The idea of a society upon this principle, correctly formed and afterwards properly managed, is of the most admirable kind. For on the one hand, it holds out inducements to industrious individuals to put by periodically portions of their income, which are invested for them by the society, and, at the end of a certain time, are repaid to them in the shape of a large accumulation, without their having themselves the trouble of seeking for suitable investments; while on the other hand, the money subscribed, being advanced to some of the members enables them to purchase houses, or similar property, and to repay the loan by small periodical instalments, extended over a number of years.

The gentle compulsion to investing members of the fines, which enforce punctuality of contribution, is not without its value as tending to form habits of economy and regularity.

3.—As regards the purchasing of house property, Building Societies are peculiarly beneficial. A large portion of a man's income is usually absorbed by the payment of rent, especially among the lower classes, who pay for their tenancy much more heavily than the rich, considering the relative value of the houses which they occupy. It has been

justly said, that every one knows something of the ultimate cost of hiring furniture for his house or lodgings; he knows that it is much more advantageous to the hirer of furniture to buy the articles outright than to pay continually for their use; and, therefore, most prudent people in the middle and humble walks of life, make it a rule to purchase their own furniture and other articles of domestic comfort and convenience, because the price paid for long hiring is at least equal to the original value of the article hired. Yet there are many thousands of persons in the Metropolis alone, who, while they deem it an unwise extravagance not to purchase their articles of household furniture, are quite content to hire their homes.

4.—It is, however, only by means of these societies that a person, not possessed of capital, who merely receives his income periodically, can become possessor of a house. This he is enabled to do from the practical fact, that the annual repayments, required by a society upon a loan, do not much exceed the rent of a house, which could be purchased with the sum borrowed (after a short period of saving as an investing member); so that a man living 10 or 14 years in a house, instead of paying his rent to his landlord and thus losing so much money for ever, pays it with a small addition to a Building Society for a limited number of years, and in consideration of this arrangement, the society advances him at once the money requisite for the purchase of the property, which thus in the stipulated time, when the loan has been repaid with interest, becomes entirely his own, the money advanced being in the meantime secured by a suitable mortgage.

5.—Such is the simple outline of the plan pursued in the practice of Benefit Building Societies, and if efficient means be provided for securing correctness in their principles of calculation and a fair and honourable way of carrying out their object, these institutions must undoubtedly be considered as an excellent application of the system of mutual association. A private individual usually finds it impracticable to obtain an advantageous accumulating interest for the smaller sums, which he can spare from his necessities. He has no means of procuring satisfactory information respecting the adequacy of any security contemplated for his investment, nor is he in the way of hearing of remunerative opportunities, which present themselves from time to time.

An association, however, of provident persons can command all that is wanting to the single member; and, although the trifling contribution of each by itself would be too small to be capable of reproductive investment, yet, when united with others in a large sum, it becomes a proportionate participator and has its representative in the aggregate profits of

the general body. Moreover, when there exists a variety of amount of talent and capital, their union for the purposes of carrying out the same design facilitates and renders possible its accomplishment. The efforts of a body of men in pursuit of a good object are generally successful, whether they endeavour to attain for themselves definite and tangible results by the operation of great commercial enterprises, or whether they combine with the provident desire to avert, as far as possible, the pecuniary loss, to which the death of any individual among their number would expose the members of his family. As an application of the former species of association, though in a limited degree and among humble classes, Benefit Building Societies have proved a remarkable illustration of the great advantages conferred by the working of this principle, but they are yet so obscured by defects and errors, as to require the application of many improvements, both in their system and practice, to prevent them from sinking into disrepute.

6.—The first Benefit Building Society* which can be traced, was founded in 1815 under the auspices of the Earl of Selkirk. It was a village club at Kirkcudbright in Scotland. Other institutions of a similar kind were afterwards established in the same kingdom under the title of 'Menages,' and the system was soon adopted in England by societies formed in the neighbourhood of Manchester and Liverpool, and other parts of the North. After the year 1830 they increased so rapidly, that on the 14th of July 1836, a special act (6 & 7 William IV, cap. 32) was passed for their encouragement and protection, in the provisions of which were embodied certain clauses applicable to their conduct, which were included in the statutes relating to Friendly Societies, passed in the reigns of George IV and William IV. As a proof of their numbers it may be stated that up to the present time, there have been registered in the united kingdom considerably over 7,000 societies, and that they are increasing every year. Of these societies, there is evidence to show that above 3,000 are yet in existence, the total income of which is calculated at

* [It may be observed that this title, which is in the Act of Parliament, and has become sanctioned by general usage, is not accurately descriptive of the nature of these societies, as few of them enter into building operations. They are really Investment and House-and-Land Loan Societies. Mr. Henry Tompkins, in a valuable work published several years ago, remarks that the original plan of Building Societies, before the passing of the Act of 1836, was to purchase a plot or plots of land, with or without some tenements upon it; and after it had been built on at the Society's expense, the said tenements were allotted, and mortgaged to the Society in some instances, or let to members, or others, at a fair rental, and this mode of operation was carried on until every member was in possession of a freehold estate, or had received the amount of his share in full. This plan was extensively adopted for a considerable period with success, in spite of the obstacle that it had no legal recognition.]

not less than £9,500,000 a year. In fact there are several whose annual incomes exceed £100,000.*

7.—The Act of Parliament just mentioned bears the designation of "An Act for the regulation of Benefit Building Societies," and was passed for the express purpose of encouraging the formation of such institutions, by granting them various privileges, among which is the power of charging a higher rate of interest than was formerly allowed; while, to protect their subsequent operations, it enacted, that each society should be governed by certain rules, to be approved of, and so certified, by a barrister appointed by Government.

It seems to have been overlooked by the legislature, that societies of this kind would be exposed to more serious danger than ever, when thus encouraged by a special act, if the rates of subscription were left unguided by any advice or check furnished by competent authority. By far the greater number of the earlier building societies were founded on incorrect principles of payment, and evinced on the part of their originators much ignorance, even of the simplest operations of compound interest. In some instances the statements put forth were very extravagant, and it would not be easy to account for the confidence with which they were received, except on the ground that a species of fascination for this kind of investment seemed to possess the minds of the industrious classes; and even persons of superior position, who would be expected to have more information, united in giving their sanction to the error, for it has been found that† no Benefit Building Society has ever been started, however ridiculous its pretensions, which has not speedily succeeded in drawing together a number of shareholders.

8.—The tone of moderation assumed in many of the prospectuses (proceeding in some cases, from an honest conviction on the part of their authors), was but too well fitted to gain the confidence of single-minded persons: it was not unusual to find some impossible project represented

* [The annual receipts from contributions of the Leeds Building Society amount to £151,292. The number of members is 7047. The amount advanced to borrowing members £826,112. (Seventeeth year, 1865.) The Temperance Building Society (London), has lent more than £500,000. The contributions received by the Queen's Building Society, Birmingham, during the *fourth* year of its existence (1865), amounted to £53,890. The borough of Sunderland, which has 103,000 inhabitants, possesses 60 Building Societies, of 13,401 members, with a realized capital of £1,768,025, having trebled their capital since 1859. The Birkbeck Building Society (London), received in deposits, during 1865, £492,789, and in subscriptions £30,975, and lent out upon mortgage £76,750. The income of the Standard Building Society, Edinburgh, for its eighth year, amounted to £127,289.]

† [Of the class of Societies, the unsoundness of which is explained in Art. 44, chap. 3, nearly 100 have been started in the metropolis alone, and it is stated that they have enrolled about 40,000 members.]

as "no speculation—no scheme, by which uncertain results are to be obtained, but a sober, well-tried, and successful mode of associating together a number of persons for the benefit of the whole," and then, although it was deemed unnecessary to give the ground upon which their promises were founded, they sheltered themselves beneath the mantle of legislative sanction, and adduced the Act of Parliament as being "of itself sufficient evidence of the favourable opinion entertained by Government of their Society." It cannot be wondered at that statements, advanced in such language as this, and supported by so high an authority, too frequently gained the confidence of the public.

9.—Nor is it thus only that the legitimate object of Building Societies has been perverted. In order to render the scheme popular and attractive, its projectors in many cases did not content themselves with promising to the poor but industrious man the privilege of becoming the possessor of a house by easy means; but unhappily infused into him an eager desire to obtain a disproportionate amount of gain in his purchase. Hence it comes to pass, that, instead of his feeling a lively satisfaction, at being able to get possession of his house by the payment to a society of very little more than the amount of his rent during a reasonable number of years, he has been taught to believe, that this important advantage can be obtained by means and within a period of time, which common sense ought to have suggested as impossible.

Whilst this attraction was held out to the borrowers, a similar sacrifice of principle was made to the investors, or non-borrowers, who were promised large accumulations at the end of a limited number of years, in return for disproportionately small monthly subscriptions. The same prospectus frequently contained these incompatible statements, and yet the subscribers believed with implicit and blind faith in the virtues of a scheme, into the practicability of which they did not trouble themselves to enquire. They lost sight of the fact, that, in saving a little money they were but providing against misfortunes and the exigencies of life: that facilities for the investment of their savings are only valuable, in so far as they increase their means for that purpose, and that, not for one moment, should they labour under the delusion that, by joining this or that association, their fortunes can be made without trouble. Such hopes cannot receive too strong a check, as they give rise to ideas, which lead the working classes beyond their sphere, and incapacitate them for the exertion necessary to maintain them in it, and thus cannot fail to induce misery and disappointment in the end.

10.—In addition to the discouraging effect produced by the errors introduced into so many societies, there are other obstacles to their

complete success, that arise from the imperfection of the Act of Parliament relating to them. In the presence, however, of these objections or difficulties, it may confidently be affirmed, that the introduction into this country of the system of Building Societies has been accompanied by very happy results in promoting habits of economy and prudence among the poorer classes.* Much good has been obtained by their enabling so large a number of persons to become possessors of houses and land,

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*[Inspired by the hope of realising a property, and so far achieving independence, the workman scarcely needs any incentive to shrink from all kinds of expenditure not absolutely necessary. Old indulgences are relinquished, economic habits are formed, and devoting every spare sixpence to the liquidation of the debt on his property, he looks with absolute derision on the weakness of consuming even so much as a quart of beer in the public-house. Never was there such an auxiliary in the cause of temperance as these land and building societies. To those who know English workmen and their buoyancy of feeling, it will not be thought strange that members of these societies should occasionally indulge in a little pleasantry on the subject of drinking. One may be heard calling to a thirsty friend as he sees him issue from a tavern: "Ah, Tom, I see you have been drinking a yard of land this morning." Others, in reply to an invitation to have a taste, will say: "Thank you; not a foot of land shall go over my throat."—*See Social Science Tracts, by W. Chambers, No.* 5.

The operation of Building Societies may be made much more effective than at present for the improvement of Industrial Homes. An interesting work recently published on the "homes of the working classes," affords particulars of efforts in this direction made by Mr. Akroyd, M.P., and Mr. Crossley of Halifax. The problem which Mr. Akroyd set himself to solve was—"How a limited outlay of capital may materially assist in raising the standard of workmen's houses in any locality to an extent far beyond the original capital employed." His plan was to purchase a suitable plot of land for a building site; to obtain designs from an able architect for building blocks of dwellings, eight or ten to each; and to find parties who were willing to take up each successive block, forming themselves into a building association for that purpose, in connection with the Halifax Permanent Benefit Building Society, which would advance three-fourths of the capital required. Mr. Akroyd not only purchased the land, provided plans, and defrayed all the expenses connected with the contracts and supervision, &c., but where the purchaser is of good character, and unable to advance the one-fourth of the purchase-money, the payment to the building society is spread over 15 years instead of 12, and Mr. Akroyd guarantees the first three years' subscriptions to the building society: the society requires only this guarantee, as, after three years, it possesses sufficient security against loss, in the mortgage of the property. The number of dwellings erected at the commencement of the year 1866 was 38; including a large and commodious store, the property of the Halifax Co-operative Society.

The scheme of Mr. Crossley is somewhat similar to that of Mr. Akroyd. His object was to encourage thrifty artisans, clerks, and others to obtain freehold dwellings for themselves. He purchased a very eligible plot of land in the suburbs of Halifax, and he offered premiums for the best designs for laying out the land and for the houses in each class of dwellings. The number of classes was four. The net cost of the houses in Class 4, inclusive of land, street, and sewer formation, legal and architect's expenses, has been about £160 for each house. The houses and land, &c., in class 3, cost about £270 each; the internal finishings and external treatment of these latter being superior to class 4. £320 is the estimated cost of the houses in class 2; and £500 for those of class 1; these are intended for foremen and the higher paid class of clerks. Space is reserved for schools, &c. The dwellings have the advantage of being pleasantly situate in the upper part of the town of Halifax, and close to the beautiful park given to the public by Sir Francis Crossley, Bart., M.P. 62 houses have been already erected.]

which, on the conclusion of their payments, they occupy free of rent, and can transmit as a little property to their families. This pecuniary interest serves at once to bind them to the soil and to promote a feeling of love and veneration for the national institutions of their country.

The fact that Building Societies have suffered little, if at all, from the several severe financial and commercial panics, which have been experienced since their introduction, speaks highly for the general soundness of the principle on which they are based, and for the character of the members they attract.

11.—Yet it is remarkable that this excellent principle has been completely overlooked by a class of persons, in more easy circumstances, to whose case it would admit of more ready and certain application. There are a vast number of professional men, and others engaged in commercial pursuits, with ample means, who continue for years to pay away large sums in rent, without reflecting, that, by uniting together in the formation of a superior kind of Benefit Building Society, they would be able to realise additional property for their families, with but little extra outlay. Such a society would also offer another channel for temporary investment to many non-commercial persons of the higher classes, who would be willing, as Investors, to lay out, from time to time, comparatively small sums of money at advantageous interest.

12.—Hitherto the money accumulated by these associations has been devoted mainly to the purpose of enabling members to become purchasers of houses and land, or similar property; yet, as far as the principle is concerned, there is no reason why it should not be applied to other objects, provided the investment obtained be equally safe. Illustrations of this kind will be found in Part II. and in our larger Treatise, where we suggest a plan for a Building Society, the shares of which, by the adoption of a combination of Life and even Fidelity Assurance, could be made payable at the end of a definite number of years, or sooner in case of death; while, at the same time, they might serve as security for the fidelity of the possessor, when holding a situation of trust.

Other useful applications of Benefit Building Societies may be enumerated as follows:—

1st.—*Provisions for Old Age* may be secured, payable at the end of any number of years, by a person joining the society as an investor.

2nd.—Houses can be *purchased*, instead of being hired, by an inconsiderable increase of annual outlay.

3rd.—Heads of large commercial establishments and ministers of parishes may, by affording encouragement, advice, and protection in the formation of such societies, secure more benefit for their dependents and the humbler members of their charge, than can be obtained by any effort, however extensive, of private charity.

4th.—Leaseholders, such as farmers and others, desirous of providing for the *fine* on renewal of their leases (if for terms certain), can do so by joining a society as investors, and subscribing for such number of shares (to be received in full at the required time) as will meet the amount desired. This obviously would be to many an easy mode of providing for what is now often felt to be a difficult and onerous charge.

5th.—The premiums or Fees for placing boys as apprentices or articled clerks to solicitors, engineers, &c., can be obtained in a similar way.

6th.—*Marriage and Family Endowments* of all kinds can be secured.

7th.—Benevolent Institutions and Religious Societies can borrow funds for the erection of churches, alms houses, schools, chapels, &c., or for the immediate paying off of debts, and the amount borrowed can subsequently be repaid by charitable contributions periodically collected.

CHAPTER II.

ON THE NATURE OF THE OPERATIONS OF COMPOUND INTEREST.

"L'Intéret est le loyer d'un Capital preté, ou bien, en termes plus exactes, achat des services productifs que peut rendre un Capital."—*Say, Economie Politique*, Tom. ii, p. 480, Ed. 4eme.

ART. 13.—PREVIOUSLY to describing the theoretical construction of a Benefit Building Society, or any other similar association, a few remarks will be necessary respecting the principles of compound interest, on which the rates of subscription are supposed to be based, so that the general reader may be enabled to judge of the manner in which the advantages to be derived from these institutions are attainable, and to appreciate the influence, which the practical contingencies, examined in the succeeding sections, may be expected to have on the results produced by a mere theoretical investigation of the subject.

It would be irrelevant to the object of this work, to enter into the doctrine of interest further than is necessary to elucidate and explain the nature of Benefit Building and other Investment societies; we shall therefore confine ourselves to a few general outlines and illustrations. The reader, who is desirous of more extended information, is referred to Treatises specially devoted to the science, and to the Mathematical Appendix at the end of this Volume, where he will find the subject treated analytically.

INTEREST OF MONEY.

14.—It is the custom in all civilized countries, that one person borrowing a sum of money from another, should pay him periodically for its use a certain consideration under the name of Interest. This consideration varies in amount according to the nature of the security given for the loan, the state of public monetary affairs, and occasionally other circumstances. In order to simplify commercial transactions and establish a standard of measurement for them, annual rates of interest have been formed, varying from £1 upwards for every £100 borrowed. This interest, although specified nominally as an annual rate, is payable at such regular periods as are agreed upon, either by annual, half-yearly, or more frequent equal instalments, each periodical payment being, however, always proportional to the annual rate.

The rate of interest, that a lender may legally demand or receive for the use of his money, was formerly limited in England to five per cent. per annum, although special exceptions were made for the investments of building societies and similar institutions. It does not seem clear for what reason the rate of five per cent. was selected as the limit allowed; and the growing opinion that the existence of such a limit was the occasion of more injury to commercial affairs, amidst the fluctuations of public confidence, than it had produced good by the restraint imposed upon usurious practices, gave rise in 1853 to the repeal of all Laws against usury.

SIMPLE AND COMPOUND INTEREST.

15.—In treating of the advantage derived by investing money, it is important to distinguish between Simple and Compound interest.

If the sums received by the lender from time to time on account of interest are placed by him in similar investments, as so much new capital, it is obvious that he not only realises interest on the sum originally lent, but also on *its interest*, thus increasing materially the advantage produced by his money, for which he is consequently said to be receiving *compound* interest.

The same would be the result, if the borrower, instead of actually paying the interest when it became due, were allowed to increase his debt thereby, with the understanding that the whole should be paid off in one sum at the end of the time for which the loan was made; the borrower undertaking to place his creditor in the same pecuniary position as he would have been in, had the instalments of interest been actually paid periodically and themselves reinvested.

If, however, instead of supposing the interest, which should have been paid from time to time, to be reproductive. the borrower were only bound

to pay the sum of the periodic instalments on the original amount lent, without anything additional for their non-payment at the epoch when they became due,—then he is said to be paying only *simple* interest; for example:—

Suppose £100 were borrowed for four years at the annual rate of five per cent. simple interest, which is to be paid at the end of the fourth year with the loan, then the amount payable at that time would be £100 and four times £5, or altogether £120.

16.—The way *compound interest* accumulates will be seen by the following example:—Suppose A lends B £1000, for fourteen years, at five per cent. interest, payable annually at the *end* of each year. At the end of the first year A receives from B £50 for interest, which he reinvests by a further loan to B, or to some other party. The amount altogether thus lent is then £1050. At the end of the second year A receives £52. 10s., as interest at five per cent., which he again lends out immediately, making his total investment £1102. 10s. At the end of the third year the interest received upon this loan of £1102. 10s. is £55. 2s. 6d., which, being also lent out, causes the total sum reinvested to be £1157. 12s. 6d., on which, at the end of the fourth year, A again receives interest, and so on, until the end of the period, the advantage derived from these repetitions of investment increasing every year.

In this example we have seen that the lender in three years clears £157. 12s. 6d. in the shape of interest on the £1000 originally lent, which is £7. 12s. 6d. more than he would have obtained by *simple interest*. In the same way if we refer to Table 4, which is formed on the above considerations, it is found that at the end of fourteen years the £1000 would amount to £1979. 18s. of which £979. 18s. arises from compound interest, being £279. 18s. more than at simple interest.

17.—As in the practice of the societies which form the subject of this work, interest is always supposed to be compound and not simple, we will confine ourselves to remarks on the various results appertaining to the realization of the former, premising that whenever the *rate* of interest is mentioned, it always signifies the *yearly* rate, whether it be actually paid once in the year, or in portions at more frequent intervals.

18.—Respecting tables of interest and the preceding example, it should be observed, that the calculations are only true, supposing the money, which is received yearly, or otherwise, as interest, to be *immediately* transferred to some investment producing the same rate of interest, and in as frequent instalments as the original investment did. The loss of a day falsifies the calculations, and neglect of this most important consideration is the cause of the frequent discrepancies which are seen between

valuations made on theory, and those consistent with the circumstances of actual practice.

19.—In commercial transactions, interest is more frequently due half-yearly than yearly, and sometimes quarterly or monthly, which materially increases the amount to which a sum of money will accumulate in a given time, since the instalments of interest are then susceptible of more frequent investment themselves, as so much new capital bearing interest. One instance will prove this :—Suppose £1000 were lent for one year at five per cent. rate of interest, payable *half-yearly*. At the end of six months the lender receives half a year's interest, or £25. This, if invested immediately, will itself produce, in six months, 12s. 6d. interest, or the lender will, at the end of the year, by his investment of £1000, have made 50*l.* 12*s.* 6*d.*, instead of the £50, which he would have received had the interest been payable yearly.

The greater advantage derived by the receipt of interest in equal instalments, more frequently than once a year, is shewn in Table 5, where is given the actual interest, realised at the end of a year, corresponding to various nominal rates, according as it is paid half-yearly, quarterly, or monthly, or even by shorter intervals of time. When interest is supposed due at the end of every moment of time, it is said to be *momentaneous*, and this hypothesis, to which other rates can be reduced, gives rise to several curious investigations, which are discussed at length in the Appendix. See also Tables 6 and 7.

20.—In cases where the *amount* of a sum is to be determined for a period of years beyond the limit of the tables which are used, the results given in them may yet serve for the purpose.

Example : suppose the amount of £100 in thirty years at five per cent. compound yearly interest is desired. Ascertain the amount in twenty-five years by Table 7, and then by rule of three determine what the sum produced at the end of twenty-five years will accumulate to in five years more ; or what is the same thing, the amount of £1 in thirty years is equal to the product of the respective amounts in twenty-five and five years. The multiplication is very easy when decimals are used.

Thus in twenty-five years at five per cent. £100 amounts to 338*l.* 12*s.* 8*d.* Again in five years £100 would amount to 127*l.* 12*s.* 6*d.*, therefore in five years 338*l.* 12*s.* 8*d.* will amount to 432*l.* 3*s.* 10*d.*—or the amount of £100 in thirty years is 432*l.* 3*s.* 10*d.*, which is shown to be correct by Table 4.

The General Theorem is :—

The amount of £1, *in any given number of years, is equal to the* product *of the respective amounts of* £1 *in any two or more periods of years, into which the given number can be separated.*

ON DISCOUNT AND PRESENT VALUE.

21.—If a person be entitled to a certain amount at the *end* of a given time, and wish in its stead to take its equivalent value at present, the sum, which he ought to receive, is termed the *present value* of the amount in question, and the difference between the two is called *discount*. The discount will be less or greater according as the sum due is discounted at simple or compound interest. In ordinary mercantile transactions, to avoid the necessity for tables, it is usual to charge a discount, equal to the simple interest on the whole debt, for the time that exists between the present and the day on which it is due. Thus if the amount be £100, and there remain two years before it is due, the discount at five per cent. rate of interest will be £10: for eighteen months it will be 7*l.* 10*s.* 0*d.*, and similarly for other periods. This is sufficiently accurate for the practical purposes of commercial affairs, and in fact is the only way in which the necessity for separate calculations on every occasion can be obviated; but for debts extending over a large number of years, such a method of computing the discount would give a result, which would be much too large. When money is correctly discounted at a certain rate of compound interest, the *present value* is such a sum as will, if invested at once at the same rate, accumulate at the end of the given time to the amount due.

Discount, therefore, being the inverse of interest, we have this fact, corresponding to the one mentioned art. 19, that:—The present value of a sum due at the end of a given time, is less in proportion to the greater frequency of the periods, at which the interest is supposed to be due.

Example: The present value of £1000, due in five years and discounted at the rate of 4 per cent. compound yearly interest, is 821*l.* 18*s.* 6*d.* But if the interest be calculated as due half-yearly it is 820*l.* 7*s.* 0*d.*, and similarly it is less if calculated as due quarterly or monthly.

Tables, which give the amounts to which a present sum will accumulate, will serve inversely to give, by rule of three, the present value of a sum due at the end of a specified number of years.

For if £100 amount at 3 per cent. yearly interest to 115*l.* 18*s.* 5*d.* in five years (see Table 4), then £100 is the present value of 115*l.* 18*s* 5*d.* due five years hence. Therefore, by rule of three, 86*l.* 5*s.* 4*d.* is the present value of £100 due five years hence.

22.—*The important theorem in Art.* 20 *holds also for present values.*

23.—A table of present values is worth attention. (See Sec. 2 Appendix.) If two rates of interest be followed down the table, and the *difference* of the present values of £100, at those rates of interest, be measured, it

will be seen that there is a period, at which the difference attains a *maximum*. In other words, If one person A obtain a present loan or advance from another person B, in return for which he is to pay him a sum S in a certain number of years; and A, out of the money he has received, lends a smaller sum (though deducting a higher rate of interest) to a third party C, from whom in repayment he is also to receive a sum S, which will enable A to pay his debt to B: then the immediate profit derived by A will be greatest, if he select the proper term of years for his transaction.

ON ANNUITIES OR PERIODIC PAYMENTS.

24.—Having explained the operations, by which a *single* sum changes its value, under the influence of interest in the course of time, we will proceed to shew, what is the result, when several sums are taken together into consideration. ANNUITY is a term applied to the periodic payment of money at fixed intervals. It is said to be a yearly, half-yearly, quarterly, or monthly annuity, according as the periodic payments are made once a year, or in two half-yearly, four quarterly, or twelve monthly equal portions. Annuities are also termed *certain*, if payable for a definite number of years; but *contingent*, if their duration depend on adventitious circumstances, such as the existence of one or more lives, in which case they are called Life Annuities. We will confine our attention to the first kind, in which there are only two fundamental questions requiring special examination, from which every problem relating to annuities can be deduced, premising that, unless the contrary is stated, the annuities are supposed payable at the *end* of each year:—

First,—What sum an annuity would *amount* to at the end of the time of its duration, if each periodic payment were to be invested and to produce compound interest:

Secondly,—What *present sum* paid down is equivalent to an annuity payable for a given number of years:

These values will vary with the rate of interest supposed in the calculations, and also with the frequency of the intervals, at which the periodic payments of the annuity, or instalments of interest thereon, are supposed due. It is obvious, however, that, first:—The *amount* of an annuity, at the end of the time during which it is to continue, is the sum of the accumulations of each periodic payment, improved at compound interest, from the date at which each was paid or due, up to the time of the expiration of the annuity. And secondly:—The *present value* of an annuity is equal to the sum of the present values of each of the periodic payments, discounted at compound interest; each payment being separately discounted for the respective distance of time between the present and the date at which it is due.

25.—Since an annuity is strictly equivalent to its *Present value*, the party purchasing and the other selling being, as far as the mathematical considerations go, in equal positions; it follows, that the *Amount* of an annuity is exactly equal to the amount, to which the present value of the annuity would accumulate, if itself were invested and improved at the same interest, until the end of the given number of years.

Hence, when accurately calculated at the rate of interest agreed upon, the Amount and the Present value of the annuity are each exactly equivalent to the annuity itself, and are thus equally applicable to the affairs of life, the one being frequently exchanged for the other. Thus, a debtor may clear off a given sum now due, by paying to his creditor, either an equivalent annuity for a certain number of years, or its amount at the end of that time; and a land-holder, whose estate is charged with an annuity, can compound for it by giving a present sum in cash.

As an example:—referring to Tables 10 and 11, we see that at 7 per cent. rate of *yearly* interest, the present value of 8*l.* 8*s.* 0*d.*, paid at the end of each year for ten years, is nearly £59, and also that the amount of 8*l.* 8*s.* 0*d.* a year at the end of ten years is 116*l.* 1*s.* 2*d.*; moreover Table 4 shews that the single sum £59 improved at 7 per cent. compound interest for 10 years gives the same amount, proving that the three are equivalent to each other; or in other words, supposing two men each to undertake to pay 8*l.* 8*s.* 0*d.* at the end of each year to a society for ten years, and that one desired to receive in return the present value of his ten years' payments, while the other determined to wait for his share until the end of the time, they would both be fairly treated, in respect of their subscriptions to the society, if the one received £59 at once, and the other 116*l.* 1*s.* 2*d.* at the termination of the annual payments.

The same reasoning applies to annuities of larger or smaller amounts for different periods of duration, and a society receiving, as in the above example, annuities from its members and paying to some their *present value* and to others their *ultimate amount*, is on the general principle of a Benefit Building Society.

26.—The whole theory of annuities cannot be explained without some analytical investigations, such as will be found in the Appendix. For practice, Tables 10, 11, and 12 may be used, in which are given, for various rates of interest, the amount and present value of an annuity of £100, payable at the *end* of each year, and the annuity which £100 will purchase. These tables, however, will serve for annuities of other amounts, and they may be adapted when the annuity is paid at the *beginning* instead of the *end* of each year.

27.—If the annuity be supposed payable half-yearly or quarterly, or *monthly as in Building Societies*, some modification is necessary in the

tables, the nature of which is explained in the Appendix. But it is clear that:—A *smaller* annuity ought to be paid during a specified number of years, in consideration of a given present, sum, debt, or purchase-money, in proportion to the *greater* frequency of the periods, at which the equal portions of the annuity are to be paid. Similarly:—The accumulated *amount* of an annuity, at the end of a given time, increases with the *frequency* of the intervals at which the instalments are paid.

28.—It will be observed that:—For a given annuity, the *amount* at the end of a given number of years will increase with the *rate of interest* at which the money is supposed invested. And inversely:—The *larger* the accumulation promised in return for the subscription of an annuity for a stated time, the *higher* will the rate of interest be, at which it must be invested. Hence, the first point to be thought of, when an accumulation is promised for an annuity paid, is:—Can the necessary rate of interest be obtained? Can every instalment of the annuity be immediately and continually invested throughout the whole time, at the rate required?

Thus for example:—£6 a year will amount to 82*l.* 18*s.* nearly, in ten years, at 7 per cent. rate of interest. But in order that £6 a year may amount to £120, the rate of interest required is 14½ per cent. (See Appendix.)

Again, that £6 a year may amount to £140, or £3 a year to £70 in the same time, the rate of interest required is nearly 18 per cent.

29.—The *number of years*, during which a given annuity is to be paid in return for a given present sum, debt, or purchase-money, increases with the *rate of interest* supposed to be paid. Inversely:—The advantage obtained by a borrower, who pays a certain annuity in return for a loan, diminishes as the number of years increases, Example:—If a borrower pay 8*l.* 8*s.* 0*d.* a year during ten years for a loan of £59, he is paying at the rate of 7 per cent. compound *yearly* interest, but if the time be increased to 13 years, the rate of interest will be about 10½ per cent.

30.—On comparing Table 4 with Table 10, it will be seen that *The difference of two successive values of the annuity-table of* amounts is equal *to the sum given in the table of single* amounts *for the lesser number of years.* Example:—

The amount of *an annuity* of £100 in eleven years, at 5 per cent.	=	£1420·67
Ditto ditto in ten years...	=	£1257·78
Difference.....	=	£162·89

which is the amount of a *single* £100 at 5 per cent. by Table 4. So that Table 4 might in fact be calculated from Table 10, if that were given.

The converse holds for *present values*, see Tables 9 and 11.

31.—If annuity payments be *deferred* for a few years, the *present value* and the *amount* of such an annuity can be easily deduced from the tables for immediate annuities. For instance, the present value of a *deferred* annuity of £1 for ten years, at five per cent., (the first payment to begin at the *end* of five years,) is equal to the present value of the *immediate* annuity:—*viz.*, £7·7217 for ten years divided by the *amount* of £1 for four years, or by £1·2155. The answer is £6·3527.

ON THE DOUBLING OF MONEY.

32.—When a sum of money increases to double its value by the accumulation of compound interest, the analytical investigations assume a peculiar form, from which we have deduced the following theorems as bearing on the system of many Benefit Building Societies:—(*See Appendix.*)

1.—For all rates of interest not exceeding 10 per cent.:—*The number of years, in which a single sum will become double in amount by the accumulation of compound interest, may be found by dividing* 70 *by the rate of interest per cent.*, and taking that whole number which is *nearest* to the quotient obtained.

* The accuracy of this theorem may be judged of by Table 8, but the property is valuable as furnishing a simple rule and one easily remembered. Thus:—

If the rate of interest be 2 per cent.	then the number of years will be	$\frac{70}{2}$ nearly	= 35 years.
,, $2\frac{1}{2}$,,	,,	$\frac{70}{2\frac{1}{2}}$,,	= 28
,, 3 ,,	,,	$\frac{70}{3}$,,	= $23\frac{1}{3}$
,, $3\frac{1}{2}$,,	,,	$\frac{70}{3\frac{1}{2}}$,,	= 20
,, 4 ,,	,,	$\frac{70}{4}$,,	= $17\frac{1}{2}$
,, $4\frac{1}{2}$,,	,,	$\frac{70}{4\frac{1}{2}}$,,	= $15\frac{5}{9}$
,, 5 ,,	,,	$\frac{70}{5}$,,	= 14
,, 6 ,,	,,	$\frac{70}{6}$,,	= $11\frac{2}{3}$
,, 7 ,,	,,	$\frac{70}{7}$,,	= 10
,, 8 ,,	,,	$\frac{70}{8}$,,	= $8\frac{3}{4}$ or 9 nearly
,, 9 ,,	,,	$\frac{70}{9}$,,	= $7\frac{7}{9}$ or 8 nearly
,, 10 ,,	,,	$\frac{70}{10}$,,	= 7

which agree with the whole numbers given by the table.

*[M. Fedor Thoman, the editor of the last edition of "Inwood's Tables," with others, have made use of this original theorem in their respective works without acknowledgment.]

When the rate of interest is higher than 10 per cent., a larger dividend than 70 must be taken.

2.—The *amount of an annuity* of £1, in the exact time in which a *single* sum would double, is equal to £100 *divided* by the rate of interest per cent.

Thus, at 5 per cent. money will double in 14 years and a fraction, and £1 a-year for the same time will amount to £100 divided by five, or £20, which agrees with Table 10.

33.—From theorems 1 and 2 we have :—

3.—*If a sum of money be borrowed for such a time, that, if unpaid, it would become doubled by the accumulation of compound interest, then the debtor can liquidate his debt with interest in that time, by an annuity equal to twice one year's interest on the sum borrowed:*—If the time be a certain number of years and days, the last payment of the debtor will be a fractional portion of the year's annuity, proportionate to the fractional number of days.

Thus, if £60 be borrowed for 14 years 76 days, (which is the exact time in which money will double at yearly 5 per cent.,) then the debt can be repaid, including principal and interest, by an annuity for that time after the rate of £6 a year, since £3 is the interest on £60 at 5 per cent.

Again :—If £60 be borrowed for 10 years 90 days (the exact time of doubling at 7 per cent.), then a yearly annuity of 8*l.* 8*s.* for that time will repay principal and interest—4*l.* 4*s.* being one year's interest on £60 at 7 per cent.

If the above annuities were paid in *monthly* instalments of 10*s.* and 14*s.* the debts would be repaid in very nearly fourteen years and ten years respectively.

4.—The *interest*, at which money will double in a *given* number of years, is nearly equal to 70 divided by the number of years.

5.—If two equal sums be invested for the same time, the one at simple, the other at compound interest, the former will increase 70 per cent. in the time in which the latter will double ; or, whatever be the rate, the advantage in the time of doubling will be 30 per cent. in favour of compound interest.

34.—The results obtained by means of the above theorems become more accurate, when the instalments of interest or annuity are due more often than once a year, and, in the case of *monthly* payments, they are found to differ but very little from the real values. The exact degree of approximation afforded by these theorems we have examined in the Appendix, to-

gether with the *general extension, of which they admit, to the case of money increasing to several times its original value.* One is most important :—

If a sum of money be borrowed for such a time, that (if unpaid it would amount to f-fold its original value) then the annuity which would pay it off, principal and interest in that time, is equal to f divided by f, less one, times one year's interest on the debt. Or :—

The amount of an annuity of £1 (*accumulated at compound interest,* i *per cent., during the* WHOLE *time in which the* single *sum* £1 *would accumulate to* £f) *is equal to* £$\frac{100\,(f-1)}{i}$

35.—The Appendix also contains other theorems, which have been deduced, relating to various interesting points in the working of Compound Interest. The results in some instances, however, are obtained only by the aid of analysis of a somewhat high order. At the end of the practical Section 4, will be found the *Formulæ for calculating tables for the allowance of interest, in case a society undertake to receive occasional *deposits*, with power to the depositor of withdrawing the whole or part of the sum, under certain conditions.

CHAPTER III.

ON BENEFIT BUILDING SOCIETIES AS ORIGINALLY CONSTITUTED.

SECTION I.

The theoretical principles of a Terminating Society.

[' *A minute inquiry into the various systems of these associations has confirmed an opinion, suggested by previous experience, that, among other defects, one stands prominent as the fatal obstacle in the way of their success, arising from the almost universal condition, by which the existence of a Benefit Building Society is limited to a specified number of years.*'—See Preface to First Edition of Treatise on Building Societies.]

ART. 36.—Benefit Building Societies are generally founded with the same object, but carried out with various modifications. They are now divided into two distinct classes: the one *terminating*, the other *permanent*. A terminating society is one, which it is intended to close at the end of a certain period, when all the shares of the members have realized their full amount. In a permanent society it is merely the membership of a shareholder that terminates at the end of a fixed number of years, (when he receives the full value of his shares,) the society itself continuing. Whichever system be adopted, the object of a Building Society is still the same, namely, as we have stated in Chapter 1, to enable individuals to associate together and unite their subscriptions from time to time in one common fund, some for the simple purpose of placing a portion of their incomes in an advantageous investment, others with the view of borrowing money, by which they may purchase houses or other similar property.

But, in order that one man may borrow, there must be others who lend. To induce a person of limited means to lay by periodically a portion of his income merely as an

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* [The principle referred to is analogous to the feature of Life Assurance denominated "*Deposit-Assurance*," which was introduced by the Author some years ago.]

investing member, some strong incentive must be held out, and the only one that has been found successful, is to offer him a high rate of interest for the use of his money. The legislature, being aware of the force of this consideration, and of the importance of removing any obstacle at that time existing, passed the Benefit Building Society Act of 1836, in which the following clause was specially introduced:

"And be it enacted, That it shall and may be lawful to and for any such society to "have and receive from any member or members thereof any sum or sums of money, "by way of bonus on any share or shares, for the privilege of receiving the same in "advance prior to the same being realized, and also any interest for the share or shares "so received, or any part thereof, without being subject or liable on account thereof, "to any of the forfeitures or penalties enforced by any Act or Acts of Parliament "relating to usury." So that, in other words, the society might charge its borrowing members, under the name of bonus, any rate of interest upon a loan which it might deem advisable; and though this clause is now rendered unnecessary by the repeal of the Acts relating to usury, it serves to show the intention of the legislature.

37.—In this chapter we shall examine the character and deficiencies of Terminating societies, and in the next enter upon the question of the merits of their successors on our principle of Permanence.

The majority of the terminating building societies announce at the time of their formation, that their shares are a fixed sum, usually £120, to be realised at the expiration of a given number of years, by which time, it is expected, the association will terminate with that result. The number of years is generally 10 or 14, although some societies exist whose expected duration is 11 or 13 years, and some in which the amount of the shares is £50 or £100. The subscriptions of the members are a few shillings a month per share, varying with the number of years calculated as the probable duration of the society, but not allowed by the statute to exceed 20 shillings per share, and the Investing or non-borrowing members are promised the amount of their shares at its close. The subscriptions are received at monthly meetings, and, with as little delay as practicable, are lent to those members, who wish to become Borrowers, and to obtain a loan in the shape of a present advance on each share they hold or take up, in lieu of the amount, which they would otherwise receive at the end. The sum advanced per share of course depends upon the number of years, that remain between the time of borrowing, and the date at which the society is expected to terminate.

38.—To explain this we will take an example; but it must be first remarked, that, in most of the associations at present existing in the United Kingdom, which have any principle of reasoning for their guide, one of two rates of interest has generally been adopted as the basis of their calculations; their expected duration being consequently different. These rates are 5 or 7 per cent. per annum; but the interest, though taken at a nominal annual rate, is supposed to be realised at the end of each month, instead of at the end of each year. In practice many difficulties, to which attention is drawn further on, oppose the actual realisation of interest monthly; yet, for the purpose of an example, the question may be treated theoretically, as if no such impediments were in existence.

Let the case be that of a 14 years terminating society, formed on a basis of 5 per cent. rate of interest, and consisting of shares of £120 each, on which every member pays 10s. at the beginning of each month, during 14 years. This sum is assumed, because such a monthly annuity would, at 5 per cent. rate of interest *supposed realised monthly* and continuously invested and reinvested, accumulate to £120 at the end of nearly 14 years; hence £120 is the amount that a non-borrowing member would be entitled to receive at the close of the society.

On the other hand it is known, that £60 cash, invested at 5 per cent. rate of compound *monthly* interest, will accumulate to £120 in nearly 14 years. If then a member should wish to discount one share and take its present value at the beginning of the society, he would be entitled to receive £60, in consideration of his subsequent monthly payment of 10s., or £6 a year for 14 years. Similarly, should he desire to borrow £300, or 5 times 60, he would have to make payments on 5 shares, amounting to £30 a year.

As the society progresses in its existence, the number of remaining months, over which a borrower's payments can extend, diminishes; so that the amount of advance per share, which a member would be entitled to receive, if he wished to borrow at a later period of the society than the beginning, would depend upon the date of his first becoming a subscriber. If he had entered only just before receiving a loan, the amount of advance per share would merely be the discounted present value of his future payments; but if he had been a subscriber for some months previously, then, in addition to the allowance for his future subscriptions, he would also be entitled to a sum arising from his past payments.

Thus, for example:—In the 14 years society in question, a member whose subscriptions are 10s. a month, or £6 a year for each £120 share, if he wished to borrow in the first month of the 7th year and had been a subscriber from the beginning, would receive 42*l.* 1*s.* 1*d.* on account of his past payments during six years, and 38*l.* 19*s.* 8*d.* in consideration of his future subscriptions, making altogether 81*l.* 0*s.* 9d. We quote one of the societies on this plan, but this can easily be proved correct by means of a monthly compound interest table.

But if the borrower had only just become a member at the beginning of the seventh year, and did not pay up any arrears or back subscriptions, he would merely be entitled to 38*l.* 19*s.* 8*d.* as an advance, in consideration of the payment of £6 a year, to be made by him during the remaining 8 years; and, under such circumstances, it is seen by rule of three that to obtain a loan of 81*l.* 0*s.* 9*d.*, he would have to pay 12*l.* 9*s.* 6*d.* a year during the 8 years. So that in fact, the *nearer* a member, at the time of his first joining, or taking up the required number of new shares, and then borrowing, is to the epoch at which the society is expected to close, the *larger* will be his payments in return for a given loan. As a second instance, it would be found that, although a member, who borrowed £300 at the commencement, would merely pay £30 for 14 years, yet, if he took up the shares at the beginning of the 9th year and obtained the same loan, without paying up any arrear-subscriptions, he would then have to pay 59*l.* 18*s.* for the remaining 6 years. Such a high rate of repayment becomes very inconvenient to members of limited means, who wish to borrow money for the purchase of house property, not at the beginning, but, when they have for some time been members; and the difficulty increases more and more, with the progress of the institution.

39.—The preceding is an example at 5 per cent. Societies formed upon the basis of 7 per cent. rate of interest are expected to last only 10 years, and on this supposition there exist a great many. The amount of the shares to be realised, at the end of such a period, is usually, as before, £120, for which the members pay 14s. a month for 10 years. This rate of payment is adopted, because such a monthly annuity would amount to £120 at the end of nearly 10 years, supposing each monthly payment *immediately*, as it is received, invested at 7 per cent. compound interest, calculated also as realised *monthly*.

Again:—since £60, if similarly invested at 7 per cent., would, with its accumulations from compound interest, amount to £120 at the end of nearly 10 years, it is obvious that a member effecting a loan upon a share at the beginning, and receiving £60 as its

present value, would be in an equitable position with regard to a non-borrowing member, who waited for the full value of his share or £120, at the termination of the society.

40.—Other associations exist founded on other rates of interest, as 6 or 8 per cent., and of different expected periods of duration. The principle of calculation, however, is the same, and the same remarks apply to all, whatever be the rate adopted. The intention of each is to give to the investors the amount of their shares in full, at the close of the number of years representing the probable duration of the society; and throughout its existence to invest the funds, from time to time as collected, in the shape of discounted advances to any of the members who wish to borrow. The amount of advance per share being supposed proportionate—*First: to the number of years or months that the borrower has already been a subscriber; and Secondly: to the unexpired time, which remains between the epoch, at which he obtains the loan, and the expected date of the termination of the association.*

41.—Such is the system of the superior class of terminating Benefit Building Societies, but it must not be supposed, that all or even the greater number were established on such accurate principles of calculation. This unfortunately was not the case. By far the majority were based on rates of subscription fundamentally unsound, and, in their subsequent dealings, both with the investors and borrowers, proceeded on assumptions, which cannot be justified by theoretical or practical reasoning. Of this the next section will contain a few instances, which prevailed in several hundreds of the societies established at an early period, and are selected not as being by any means the most extravagant of the number, but simply from the extent to which they were adopted.

The defects* in most cases are so numerous and varied, and in each individual society so interwoven one with another, that it will be necessary for the better separation of ideas, and in order to enable the reader fully to understand the details into

* [In the State of Massachusetts, Building Societies have been in operation some years under the title of Loan Fund Associations, but as most of them are founded on the terminating principle, their career has not been prosperous. The Insurance Commissioners of the State, who are charged with supervision of these institutions, made the following remarks, in their Report of 1862:—

"There seems at present no probability that the number of these organizations will increase. Most of those now existing will soon close by their own limitation, and perhaps the rest will also cease from the fact that their structure is not stable enough to stand the pressure of these times. In a few years they may be remembered by some only as a scheme by which sharpers absorbed the money of the simple, and by others as an unsuccessful if not an unfortunate experiment."

The Commissioners, however, proceed to remark, "That in spite of the inherent defects of these Associations, and the abuses in practice, they have had a large degree of usefulness, and have demonstrated, perhaps even better than if they had been better constructed, the value of the principle *of repaying loans by small monthly instalments.* It has been impossible for us to ascertain with exactness, but we have no doubt that by means of them not less than one thousand families in Massachusetts now enjoy homes of their own, who would otherwise have been rolling about as tenants from one landlord or boarding-house to another, or have left the State in disgust to find a home in the wilderness. Though the machinery has not worked smoothly, it has turned out an article of inestimable value."

Twenty-eight of these Societies are still in existence, having lent £670,000, and having lost only £3,000 upon realization. The largest amount lent to one member in any Society is £2,350; and some have never lent more than £200. The aggregate existing capital of the several Societies is £160,000: and the annual expenses of management, £8,000.]

which we are about to enter, that we should endeavour to introduce some classification among them. The chief heads under which they may be resumed are as follows :—

1.—Inaccuracy in theory: such as erroneous rates of subscription, &c.

2.—Practical causes, which nullify the results obtained from accurate theory: such as loss of interest, the expenses of management, &c.

3.—The *pecuniary loss* inseparable from the condition of termination.

4.—The great *inconvenience* caused to individual members by the terminating system: such as the difficulty of withdrawing at the time when a member may desire it, or of effecting the redemption of a mortgage on equitable terms, &c.

5.—Losses through mismanagement: viz., From inattention to the sufficiency or soundness of security accepted for investment; or, from the consequences of inaccuracy in balance sheets, &c., &c.

Some of these defects will be explained by themselves in the next section; others, to avoid the necessity for subsequent repetition, will be considered by way of contrast in the chapters, which treat of the advantages of the permanent principle and the practical working of building societies.

SECTION 2.

* *Societies on erroneous principles.*

42.—*First instance*:—Societies have been established, proposing to last 10 years only, and sometimes for a less period, the shares of which are £120, and the payments of the investors 10s. a month: that is to say, for a subscription of £6 a year during 10 years, or a total payment of £60, a member is promised £120 at the end of that time.

Now, in order that the payment of £6 a year may accumulate with compound interest to £120, in the course of 10 years, a rate equivalent to 14½ per cent. yearly interest must be realised; and unless the subscriptions are continually invested and re-invested at this rate, the promised results are impossible; of this the reader may satisfy himself by referring to the mathematical appendix.

The borrower's repayments, however, do not bring into the society a higher rate of interest than 7 or 8 per cent., and in some cases much less; for the same prospectuses state, that if a member desire an advance in the first year, he will receive £60 on each share, (sometimes only £55,) in return for which he will have to pay 14s. a month, or 8*l*. 8*s*. 0*d*. a year, for the 10 years, the extra 4s. being usually charged under the name of redemption fee. A reference to a compound *monthly* interest table, will shew that the actual interest produced by these repayments, which include principal and interest, is between 7 and 8 per cent. per annum. The advances also, made in the second and subsequent years of the existence of the association, are in the same proportion;—consequently, the subscriptions of the members are incorrectly calculated to the large amount of nearly 7 per cent. annual rate of interest, even although the borrowers pay so high a rate as 8 per cent. Hence it follows, *that the promised results cannot be realised.*

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* The attention of Trustees and Directors is requested more particularly to the remarks contained in this section.

The above assumes that the monthly receipts are also re-invested monthly. Such in reality is not the case. Indeed, even if a society of this kind were to experience no pecuniary loss from any of the causes which will be examined further on, yet the result would practically be only as follows:—By Table 9, a yearly annuity of £6 invested continuously at 7 per cent. will accumulate to 82*l.* 18*s.* 0*d.* in 10 years; leaving a deficit of 37*l.* 2*s.* 0*d.* per unadvanced share, or nearly one-third of the promised amount, at the epoch of the expected termination of the society.

Again,* even supposing the borrowers should unwittingly consent to pay 10 per cent. interest for their loans, there would yet be a deficiency of 24*l.* 7*s.* 6*d.*; since the amount of £6 a year in 10 years at 10 per cent. is only 95*l.* 12*s.* 6*d.*

This remarkable instance of inaccuracy of rates is the more worthy of notice, as it prevailed with various other less important errors in a very great number of Benefit Building Societies, and thus involved the pecuniary welfare of many shareholders.† There can be no doubt, however, that it arose entirely from ignorance, for the same

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* [Unjustifiably high rates of interest were prevalent among many of the earlier societies, from a mistaken interpretation of the Rules, and much injustice is still occasionally committed by the same means. For example, in some associations, the borrowers pay interest at 4 or 5 per cent. on the amount advanced, pursuant to clauses similar to the following: *viz.*,

"PAYMENT OF INTEREST.

"1. That any member having received his or her share or shares, shall pay interest at £5 per cent. per annum, on the amount borrowed, by equal monthly payments, such interest to commence from the time the money is advanced or if the security for the same be not completed previously, then from the third month from the time of purchase, and to be subject to the same fines as for subscriptions in arrear."

The obvious equitable interpretation of the preceding is, that the interest-subscription shall be after the rate of 5 per cent. on the *whole* sum borrowed, *diminishing*, if the debt diminish, in just proportion. For example, let the debt be £100; the borrower's payments would comprise the ordinary subscription, and £5 a year or 8*s.* 4*d.* a month, for interest. As, however, the principal of his debt is gradually liquidated in the period of the society's duration, it would not be fair to require him to keep on paying £5 a year for interest to the end; inasmuch as, in so doing, he is practically paying sums in interest which increase the rate from 5 per cent. up to 50 per cent. Yet this has been perpetrated in many societies.]

† [The following advertisement, extracted from a weekly periodical, will serve as a specimen of popular credulity:—

Immense success of Mr. ————'s Building and Investment Societies.

£70 for every £30 Subscribed in a Fixed Term of Ten Years.

NOTICE.—The Members of the ———— BUILDING AND INVESTMENT SOCIETY may now (the Second Year having terminated) receive the whole amount of their subscriptions with 18¼ per Cent. per *Annum Interest* thereon. By order of the Board,

(Signed) ————————, Secretary

Important to Persons desirous of Purchasing House Property.

£1,000 will be offered for Sale at the *Second* Meeting of the ———— BUILDING AND INVESTMENT SOCIETY, on THURSDAY EVENING, the 9th of May next, at half-past 7 o'clock.—*Interest payable by the Borrowers* from 1 to 5 per cent (!).—The whole amount of the purchase-money and law charges advanced by the Society.—No arrears to pay—*Fixed to close in* 10 *years certain.*—Subscription, 5s. per Share per Month.

From the great number of Shares taken at the First Meeting, this Society will be closed after the 3rd Meeting."]

prospectuses usually declared, that the annual rate of interest, charged from the borrowers, did *not exceed 4 per cent.* This last statement was possibly suggested by some misconception founded on the circumstance of the borrowers paying 4s. a month per share more than the investors.

43.—The *Second instance* is of a more complicated character, and was introduced with considerable pretension by its advocates as an improved plan of a Benefit Building Society.

The scheme professed to guarantee that the society shall positively *not* last more than 10 years; that non-borrowing members, by paying 5s. a month, or £3 a year, for 10 years, would be entitled to and receive £70 at the end of that time, which is £40 more than the total amount of the 10 years' subscriptions; also, that the borrower should receive as an advance on each share, if there were *no* competitors with him for the same loan, the total of the 10 years' subscription or £30, in return for which he was to pay 5s. a month or £3 a year for 10 years: or, in other words, that a member could borrow £30, and repay the whole, including principal "and interest," by ten payments of £3 extended over 10 years.

If, however, there are several applicants for advances, then the prospectus stated—

"That the funds of the society shall be put up to open competition; and the same "shall be awarded to those members who shall offer the *highest premium* or interest "for the use thereof. By this plan the great evils, loss and uncertainty, attendant "upon the rotation and balloting systems, are avoided.

"That the premiums or interest shall be the only sum payable by the borrowers for "the use of the money that shall be advanced to them.

"That the premiums bid shall not be deducted from the sum to be advanced, but "may be paid by equal monthly instalments, spread over the remainder of the ten "years.

"This will be a very great accommodation to the borrowers, and is, in the opinion "of the Directors, a great improvement upon the old systems, under which the "premiums are deducted from the money to be advanced.

"In order that the members may be guided as to the premiums they may safely bid "for advances of money, the following table is given, showing the amount of interest, "to which the premiums from £3 to £15 per share will be equal for the ten years:— "namely,

PREMIUMS, IF GIVEN DURING THE FIRST YEAR.				Interest ℔ cent. ℔ ann.		
£.	s.	d.		£.	s.	d.
3	0	0	Premium for an advance of £30, spread over the 10 years, will be found equal to	1	0	0
4	10	0	ditto	1	10	0
6	0	0	ditto	2	0	0
7	10	0	ditto	2	10	0
9	0	0	ditto	3	0	0
10	10	0	ditto	3	10	0
12	0	0	ditto	4	0	0
13	10	0	ditto	4	10	0
15	0	0	ditto	5	0	0

"While such great benefits are secured to the borrowers, it will be seen that those "members, who allow their subscriptions to remain as investments, will receive, at "the expiration of the ten years *certain*, a very large profit, amounting, it is calculated, "(from the facilities and encouragement afforded to borrowers, and the certainty of "this society being always able to lend out its funds at a moderate rate of interest), to "nearly £40 per share, or £70 for each £30 subscribed in the course of the 10 years: "thus shewing, that persons wishing to invest their small savings, and parents desirous "of securing a future provision for themselves or their families, will be able to do so "in this society with a vast deal more advantage and solid benefit, than they can by

"investing their money in life assurances, or depositing the same in savings' banks, "which do not in any case allow more than 3 per cent. per annum interest, or *not* "*above one-tenth of the estimated interest or profit to be gained by investing money in* "*this society.*"

"This plan clearly proves that, although the investors (that is to say those members "who do not borrow money of the society) will probably more than *double* the capital "they may invest in this society in the 10 years; the borrowers will gain *considerably* "*more* in the same time."

We have quoted so much of this prospectus, because the system is one, that contains a variety of complicated errors common, unfortunately, to a considerable number of societies.

It has been said, that the investors were promised £70, in return for 10 annual payments of £3.—This could not be effected unless the subscriptions were invested after the rate of 18 per cent. yearly interest, continously realized during the 10 years, by the constant investment and re-investment of the society's funds, in loans to borrowers. (*See Appendix*).

Now the members who borrow, pay more or less, according as there is competition or not for advances.

If there be no competition, a borrower gives no premium, and consequently, in obtaining a loan of £30 per share, has only to pay £3 a year for 10 years, or in other words, he has the loan *without paying any interest for it.*

If there be competition, the *highest* premium he can pay on each £30 share is £15, spread over 10 years: he therefore obtains an advance of £30, for which he has to pay annually £3 subscription, and 1*l.* 10*s.* 0*d.* instalment on his premium during 10 years, which is equivalent to paying nearly 8 per cent. rate of interest for the loan. [See the Tables at the end.]

So that in the most favourable case the society would experience *annually a deficiency* of 10 per cent. rate of interest.

If the premium or discount, which a borrower allows, be less than £15, the repayments made by him are smaller, and consequently the rate of interest obtained on the average is less than 8 per cent. Hence, while, on the one hand, this '*Improved*' *plan undertook to guarantee to the investors a profit arising from the accumulations of their subscriptions at* 18 *per cent. compound interest, yet, on the other, it lent out the money at rates, which never could exceed* 8 *per cent., and in most cases would be considerably less.*

We pass over the other incorrect estimates advanced by the prospectus, respecting the rates of interest, which are said to correspond to the various amounts of premium mentioned, as enough has been stated to prove the *utter unsoundness* of the plan.

44.—A form of society has found some favour of late years, in which the subscriptions of investing members are fixed at a trifling sum, such as one shilling a week, and no interest whatever is promised to them; the attraction being the promise of a loan of large amount—£250 or £300—to be balloted to the member, on which it is pretended he has to pay no interest. The rules provide, however, (cl. 25) that in addition to a repayment of 10 per cent. per annum on the loan for 10 years, the amount of the investing shares shall subsequently be paid up by each borrowing member, and that the objects of the society shall not be treated as realized till each member has had an advance, which entails on all members the legal necessity of continuing their subscriptions till all are served with loans. The encouragement to overlook this consideration on joining the society is a promise that "when the whole purpose of the society has been completed," all the subscriptions received shall be returned to the members. Any

person desiring a loan from such a society, and not successful in getting one soon ballotted to him, has to *purchase the right to an advance from some more fortunate member, who may not wish himself to use it. The price given for the right is measured by the necessities of the one party and the cupidity of the other, but it has the same effect to the member who borrows as if more interest were charged on the loan by the society, and the society as a body loses the profit obtained by the members who, through chance only, may have secured the right to an "appropriation," as such loans are termed. A system involving such a complication of errors and absurdities would have earlier broken down, but for the profit obtained on the shares of those members who withdraw disappointed.

45.—Many other societies have been started, conducted upon various schemes, which are equally fallacious, and announcements in the public prints such as the following, were not unusual:—

"From the peculiar advantages offered by this society, the investing members will "reap above 20 per cent. interest for the use of their subscriptions," &c., &c.

And further on, the same advertisements assert—

"That the borrowers will scarcely pay at the rate of 2 per cent. interest for their "loans."

Again—

"It is calculated that those members who allow their subscriptions to accumulate at "compound interest till the close of this society, will receive about 25 per cent. annual "interest for the same, &c., &c.: and from 80 to 100 per cent. profit will be obtained "by those members, who purchase property with the money advanced to them by the "society."

Such statements require no comment.

46.—It is not necessary to extend our inquiry into the defects of other societies, as since our earlier publications, increasing knowledge on this subject has to a considerable extent prevented their formation. Our object in this place is rather to point out the general practical objections to the system of terminating societies altogether, than to rectify misconceptions, which arise from ignorance. It is, however, worthy of notice that the tendency of new societies was to diminish the rate of contribution paid by the members, without making any corresponding reduction in the value of each share promised at the termination. Formerly a more secure principle was adopted, and the monthly subscriptions required on each share were much larger. For instance, in most of the old Liverpool and Manchester Societies, the shares were fixed at £150, and the monthly payments at 20s. per share. Hence, many succeeded in terminating successfully. The modern associations, however, diminished the monthly

* [The following advertisement shows that the sale of loans is carried on systematically by these societies:—

"APPROPRIATION.—£300 for 10 years, without interest, in a ——Building Society, for SALE. Money ready to be advanced on freehold, leasehold, or for building purposes. Repayable £7 10s. per quarter. Also a £250.—Secretary, 13, —— street."]

subscriptions one half, and yet took only £30 off the amount of the share to be realised. In general the statements, they put forth, did not depend upon principles deduced from sound knowledge or careful reasoning, but were rather the offspring of crude guesses thrown out at random. The originators of the multitudinous variety of new and improved plans, promising such large benefits simultaneously to each of the two classes of members, who alone constitute these societies, might, with as much probability of success, devise a game of cards, at which all who played should rise up winners. They did not reflect that, although a fair and reasonable benefit may be secured to the investor by lending on equitable terms to the borrower, yet, any extra profit beyond this, which is promised to the one, can only be obtained at the expense of the other.

SECTION 3.

The leading practical objections to Benefit Building Societies as originally constituted.

47.—Among the objections which apply to the majority of the earlier societies, there is one which is peculiar to those founded on the terminating principle :—

In consequence of its being intended to close the society in a given number of years, or as soon after as practicable, the opportunity for investment soon ceases, as the members are unwilling to borrow in the later years of its existence, when the period, over which a loan can extend, has become small, and the corresponding rates of repayment much increased.

It is found by experience, and it is indeed a fact, which common sense would suggest, that it is almost impossible to find members who will care to borrow, when the first five or six years of any society's expected duration have elapsed. The monthly repayments upon a loan, which is to be only for a short period, become too large to suit the means of the industrious classes, who are usually the shareholders of a Benefit Building Society ; and this difficulty increases to an insurmountable degree in the last years of the proposed term of its existence. For although a man, who borrowed £300 for 14 years in order to purchase a house, might contrive with comparative ease to pay £30 a year in addition to the taxes and ground rent; yet he would probably be unable to pay 59*l.* 18*s.* 0*d.* a year if the loan were merely for 6 years, or 85*l.* 12*s.* 6*d.* a year if it were only for 4 years, and so forth.

In ten-years societies the difficulty is still greater, as the terms for loans are much shorter. This circumstance creates therefore a cessation of investment, and consequently a loss of interest, which altogether nullifies the calculations upon the supposed truth of which the society was founded ; for it has been shewn that, even supposing the rates of a society accurately calculated, they can only prove correct, on the supposition that there is never any loss of interest on its funds, or, in fact, that all monies received from subscribers are continuously invested until the end. Hence this objection, which becomes greater and greater with the progress of the society, stands prominent as a vital obstacle.

Some societies attempt to obviate the difficulty by a plan, which, in some measure, would be successful in preventing this loss of interest, were it not that it entails another equally important objection relative to the expenses of the association. The plan alluded to consists in dividing by lot any balance of money existing at a meeting, where there are no borrowers, among those members who have not yet received advances on their shares; so as to compel them at once to withdraw from the society, as far as such shares are concerned; the amount paid, on this forced withdrawal of each share, being regulated by its value at the time of withdrawal, according to the rules.

Such a measure, though necessary, adds to the general difficulties in the principle of termination, since it tends month by month, in a rate rapidly increasing, to diminish the number of the members of the association; for in each successive month of the last years of its expected existence, the number of members, who desire to borrow, becomes less, and in the absence of applications for advances, the number of investors, or non-borrowers, who must be paid off, increases. Thus the society, which might otherwise have succeeded, rapidly sinks in importance, and *the expenses and any deficiency of funds* which may afterwards be discovered, instead of being spread over a large body, have to be borne by the few, who are unlucky enough to remain to the end.

48.—The following objections for consideration, although common to many societies, whether terminating or permanent, are nevertheless increased and aggravated when the institution is of a transitory character.

First.—*The interest is usually calculated as likely to be realized monthly, whereas such is practically not the case.*

It is not possible but that, from the very beginning of any society's existence, some portion of its funds will at various periods remain unemployed for a time. Sometimes this takes place, because the balance in hand is not large enough to meet the purpose of any borrower particularly in the first year or two, when the subscribers are too few in number to raise quickly enough an adequate sum. Sometimes, on the contrary, when the amount required by the borrowers, whose names are entered, has been advanced, there remains a sum which is not applied for.

Now it has been stated, that the interest is generally calculated as produced monthly, which would require that there should never be even a day lost in investing the whole of the subscriptions, collected at each meeting; and since this is practically impossible, it may be laid down as an axiom, that no society can be secure, whose rates of subscription are formed upon such a principle. It is not remembered, that although it is desirable to receive the subscriptions monthly, yet it is not safe to act upon the hypothesis of their being immediately reinvested, or of monthly interest being actually obtained, as such a mode of calculation reduces the rate of repayment, which it is necessary to charge to a borrower for a given loan. It is one thing to receive the repayments monthly, and another to assume in the calculations, that they will be as frequently reproductive of interest. In other words, the safety of any society depends upon the managers always having sufficient time, before the arrival of each of the calculated periods for reinvestment, upon which the tables are based, to complete the necessary details for preventing loss of interest, by investing all monies which are not required for the immediate purposes of management. This can only be secured satisfactorily, by making the epochs of monetary repayment in each year more frequent than the periods, at which allowance for interest is credited to the borrower in the fundamental calculations. Hence it would be safer, at all events, if the interest were supposed paid quarterly; but, in order to remove any possible contingency from this source, we consider that, in all calculations, which form the basis of the subscriptions, the interest should be assumed

as only realized annually and at the *end* of each year. The difference between this assumption and the actual result would be in favour of the society, and useful for contingencies.

49.—Whilst we are upon this subject, it is important to direct attention to another circumstance, which affects the accumulations expected to be realized from interest. In many of those societies whose rules were certified before the Registrar had been advised that the borrowing of money was not in accordance with law, (*See Legal Chapter*) and in some of those whose rules contain no power for the purpose, there exists a practice of borrowing money from their bankers, for the temporary purpose of accommodating members sooner with advances. This is often done at the commencement of the association, and occasionally later in the course of its existence. If the sum charged by the bankers for the accommodation does not exceed the interest, which forms the basis of the society, and, as such, is expected to be paid by the borrowing members, then the transaction is safe and highly advantageous. But if the bankers charge 8 or 8½ per cent. as at times has been the case, while the society only receives 5 or 6 per cent. from its borrowers, then a loss must be experienced. Those societies, in which the Advance-repayments are founded upon a 5 per cent. rate of interest, ought to pay particular attention to this consideration. If money be borrowed from extraneous sources, and it is undoubtedly often necessary to do so, in order to carry on and facilitate operations, let care be taken that those members, who are benefitted by the accommodation, pay the extra charge. As at present, however, money can only be borrowed on the personal security of the Directors, an alteration of the law is urgently required.

50.—Secondly.—*The loss from the expenses of management.*

Whether the amount of monthly subscriptions from the members of a Benefit Building society be theoretically sufficient or not; yet the promised results connot be realized, in consequence of the annual loss caused by the Expenses, which are not adequately provided for.

In Section 1 we have seen that, in most societies founded upon principles theoretically accurate, the present value of each share at the time of an advance, or its amount at the *end* of the specified number of years, are respectively equivalent to the accumulation arising from the receipt and immediate reinvestment of the monthly subscriptions thereon. It follows, that the money so received cannot be appropriated to other purposes without loss; hence the expenses of starting and giving publicity to a Building society, and those also of its subsequent management, to however small a compass they are reduced, must be defrayed out of some other source of revenue than the share subscriptions.

If the initial and subsequent annual expenses could be accurately estimated beforehand, there would be no difficulty in ascertaining what payment per share ought to be contributed by each member to meet the necessary outlay. In the majority of cases, however, the probable amount of the expenses is neither known nor provided for, although they are frequently asserted to be covered by the entrance fees, fines for non-payment of subscriptions when due, and a few other trifling sources of profit, which the society may expect to receive. To a certain extent this is correct, but in no case are these receipts sufficient to defray more than a very small proportion of the expenses. In the first place it must be remembered that a fine is not wholly profit: a fine is inflicted at so much a month per share, for neglect of regularity in paying the monthly subscriptions when due, and, therefore, is partly requisite to supply the loss of interest, which the society would otherwise experience. And, even assuming that the preliminary expenses could be covered by the money received from entrance fees, which an inspection

of the various Balance sheets shows to be very seldom the case, yet the *annual* charges of management, consisting of office rent, salaries, &c., must be provided for.

To show how such an annual outlay would affect the ultimate status of a Terminating association, take for example a 14-years Building Society, whose shares are £120, produced by a monthly subscription of 10s. or £6 a year, and the annual expenses of which we will suppose to amount to £72 a year. Now £72 is 12 times £6, or equal to the amount of subscription received yearly on 12 shares, and, therefore, by the fundamental statements of the society, is calculated as equivalent to 12 times £120, or £1440; consequently the annual charges must produce a deficiency of £1440 in the society's funds at the epoch of its originally expected termination. This instance will apply in principle to all societies, whether of 10, 12, or 14 years' duration, unless, independently of the monthly share subscriptions, they have adequately provided for the annual expenditure. An inspection of many of the annual Balance sheets shows moreover, that the expenses of the year added together frequently average from £120 to £150, which, on the same principle of calculation as that made use of above, must create, from this source alone, a deficiency in the society's funds, at the end, of from £2400 to £3000.

51.—Thirdly.—*There is no provision made in the theoretical calculations for losses, which may be experienced through bad investments, &c.*

In all mercantile transactions of this kind losses must occasionally happen; and, whether they arise from wilful neglect or carelessness, or other causes, such as deterioration in the value of property, they combine to produce an effect for which no provision is made in determining the subscriptions to be paid by members. Although, at the commencement of a Benefit Building Society, it would of course be impossible to foresee the individual events, or even the nature of the events, which are likely to be productive of loss, yet it is a matter of experience that losses will occur, entailing a deficiency in the society's funds at the time of its promised termination, which, with the combination of the other defects already mentioned, will, in the case of a Terminating society, tend to cause a *prolongation of its existence* beyond the originally intended or stated period.* By such means the duration of the subscriptions of both investors and borrowers is unavoidably extended, and they suffer in consequence a decided loss.

In the first clause of the Benefit Building Society Act, it is provided that the duration of a society and the consequent continuance of the Borrower's repayments, shall depend, not on any number of years specified in the prospectus, but, upon the actual completion of the full amount of the *unadvanced* shares; so that a society may not close at the end of the expected term of its existence, unless the funds collected at the *last* monthly meeting shall be sufficient to give to each of the non-borrowing members a division per share equal to its originally stated amount. If there be a deficiency, from whatever cause it may proceed, then must all the members, borrowers as well as non-borrowers, continue their subscriptions for such additional number of months as may be necessary, unless they should all unanimously agree to dissolve the society and put up with the loss sustained.

In some of the Terminating societies, provisions have been inserted in the rules that, whatever be the position of the society's affairs at the end of the expected time of its duration, the borrowing members shall *not* be required to continue their payments beyond that period, but shall have their deeds returned to them, and their property released from any further claims. Such provisions are nevertheless of no legal avail

* [A London Society, of which the proposed duration was 10 years, decided that, from the extent of its losses by advances on insufficient or bad security, its term must be extended to 16 years.]

whatever, and cannot prevent a prolongation of the society, nor in any way protect the borrowers from its consequences. No rule can protect them from a liability for such continuance of monthly subscriptions, as may be deemed necessary for the purpose of making up any deficiency that may exist.

52.—It appears, therefore, that no society can possibly possess, at the end of the originally specified time, sufficient funds to give to each Investor the full amount of his shares, even supposing the rates are accurately calculated, unless:—*Throughout the whole previous duration of the association, there has been no loss sustained, either through bad investments or other causes, or from extraneous expenses (not covered by sufficient extra contributions from each member over and above the receipts from fines, fees, &c.), and also unless no month has ever passed during which any part of the subscriptions has remained unproductive, so that, in other words, no loss of interest has at any time occurred.*

53.—Should there arise a deficiency from any one of these causes and the duration of the society be prolonged, it will be well to consider the effect, which such a result has upon the relative interests of the Investors and Borrowers repectively. An extension of its existence for 3 or 4 years in reality causes the borrowers to pay much more for the loans they have obtained, than they imagined would be the case, when they entered into their engagements towards the society. The interest which they actually pay, instead of being perhaps only 5 or 7 per cent., becomes thereby increased to more than 10 per cent. An investor, also, not only does *not* receive the promised amount at the expected time, respecting which he may very likely have made pecuniary arrangements, but he is also compelled to continue his own subscriptions; by which means the benefit, that he derives from his shares, is very materially diminished.

As, however, the Investors have still the option of withdrawing from the society, if they are willing to accept the amount of dividend per share that the funds admit of, and thus mutually agree to dissolve the association, it will often be a question worthy of their serious consideration, whether it will not be better to endeavour to make an arrangement with the existing borrowing members, that the latter should at once contribute something towards the deficiency, to be determined by calculation, and then that all the members, both investors and borrowers, should agree to dissolve the society. Experience has shewn that this plan will really be the most advantageous to the two classes of members, inasmuch as the investors will be prepared, in general, to put up with some loss, or, in other words, to release the borrowers upon liberal terms, in order to receive at once some money for their shares, however the amount may fall short of what they expected.

54.—*We have said that the Borrowers have not to make good the whole deficiency in the society's funds, but only their proportionate amounts, considered relatively to the otherwise necessary continuation of subscriptions from both parties. Hence, it will be advisable, in order to avoid an unintentional act of injustice to either, that the members should see that the proper quota to be contributed is determined by accurate calculation. In the Appendix we give a specimen of the mode of investigation to be adopted.

55.—In perusing these remarks respecting the majority of the terminating societies, and in comparing the liberal promises contained in their prospectuses with the periodic reports of the position of their affairs, we believe the impartial reader can arrive but at one conclusion. † He will become satisfied:—That not one in twenty, or even in a greater number, can possibly realize for its members, whether investors or borrowers, the advantageous results originally promised; and that, at the various epochs of their expected termination, there will be found such a deficiency of money as must deprive the possessors of unadvanced shares of a considerable portion of the accumulation, which they had been led to expect; —That in many cases, so far from receiving £120 per share, they will obtain less than £75, and that, if not disposed to accept whatever sum may be then offered to them, they will be forced to continue their subscriptions for several years beyond the specified time; That these unfortunate results have arisen in great measure from a lack of proper knowledge and experience in the originators of these institutions,—a circumstance that does not always escape the notice of the industrious classes, and tends largely to diminish their faith in the real advantages of prudent and economical habits;—Lastly, that legislative measures are necessary for the due regulation both of the legal establishment of a Benefit Building Society, and also of the system of its financial operations; and that some supervision should be exercised by truly competent persons, not only at the commencement of the society's existence, but subsequently, from time to time, throughout its progress.

* [Since the first publication of our Treatise, a great number of old societies have remodelled their Rules and Rates of Subscription, and have been converted into *permanent* institutions upon a simple plan founded upon the principles laid down therein. It is also highly gratifying to state, that very few *terminating* societies have been formed during the last 15 years.]

† [Readers should beware how they rely too hastily upon statements, which they may hear, of individual societies having terminated successfully. They will find, upon investigation, like the Author, that some questionable expedient has been adopted, towards the last years of its intended existence, by which an apparently prosperous end has been attained. For example, it may be mentioned that in the North of England a society terminated lately with the promised results, through the members paying for the last few years double the original subscriptions upon their shares. The public were then informed of the fact, that the shares had been realised:—The shareholders alone could have stated, what they had paid for the same.]

CHAPTER IV.

ON PERMANENT BENEFIT BUILDING SOCIETIES.

ART. 56.—Having reviewed some of the leading objections to the plan of *terminating* societies, which propose to close at the expiration of a fixed number of years, or as soon after as the stated amount of the unadvanced shares is realised, we will now proceed to examine in detail the various superior features of our *permanent* system.

To enable an institution of this kind to conduct its operations successfully, as regards the profit, which is expected by the investing members, at the same time that the borrowers are freed from unjust responsibilities, it is proper, not only that the rates of subscription and repayment should depend upon a sound basis of mathematical reasoning; but, also, that the general system of the society's practical operations should be, as much as possible, clear from those defects, which either prevent the realisation of the expected interest within the calculated time, or produce injury and personal inconvenience to the members. It is essential, that due provision should be made for the current expenses and liabilities, and that they should no longer be left dependent upon the uncertain receipts from fines or fees. The relative position of the two classes of members should also be more equitably considered, so that the profits of the one may not be increased by taking an unfair advantage of the other; and the period of the duration of a mortgage should be rendered definite, in order that the claim of the society upon a borrower may at all times be subject to equitable adjustment, in case of his being subsequently desirous of redeeming his property; since it is evident that any uncertainty, respecting the duration and amount of a debt, tends materially to depreciate the saleable value of the security held for it.

As, moreover, it is not easy to form an opinion of the possible fluctuations in the value of money, when it is involved in transactions extending over a lengthened number of years, attention must be given to a suitable Reserve being annually made upon the society's profits to form a protective fund against future contingencies. Experience daily shews, that Benefit Building Societies, from the peculiar nature of their transactions, are exposed to losses, which cannot always be averted by the most careful or intelligent management. By subjecting, however, the chance

of their advent, to the laws of 'Average,' and by providing a resource, whence any deficiency may be at once made good, these institutions can be rendered, on the whole, as secure and as advantageous mediums for investment, as any other in the kingdom.

57.—The Permanent plan, which we devised in 1846, appears to meet these requirements, as it is entirely free from most of the objections peculiar to Terminating societies:—

1st. The difficulty of finding borrowers, at any time in the course of the existence of a society, is removed.

2dly. New members may enter in any month without paying up any arrears or increase of entrance fee. Hence, the scope of the society's action is extended, and the power, resulting from mutual association, of doing good, is greatly augmented, as the number of shareholders increases year by year, and even month by month, instead of diminishing.

3dly. The initial and annual expenses can be more equitably divided, and spread over a larger number of members.

4thly. A member may, under reasonable restrictions, withdraw his subscriptions, or effect the redemption of a mortgage, without the delay or expense, that he would experience in a terminating society.

5thly. The duration of members' subscriptions can be fixed with greater certainty.

58.—The system of a Permanent Building Society, which is most simple in its operations, may be explained as follows:—

The members are separated, as before, into two classes, Investors and Borrowers.

The investors pay a certain monthly subscription during a *fixed* number of years, calculated as sufficient for the realisation of their shares, at the end of which time the amount due is paid to them, and they secede from the association, as far as such shares are concerned. The investors represent the proprietors of a company. New members can enter at any time, and commence their subscriptions without paying up any arrears or any increase on the original entrance fee, whereas in terminating societies, the fee on entering is increased, without sufficient reason, year by year, until, from being originally only 2s. 6d., it is in some cases raised to six pounds per share. The duration of a membership is counted from the month of a member's first entrance. This causes every month a fresh series of members to be added to the society or new shares to be issued, so that, taking an example, if the term of membership were 10 years or 120 months, and 50 new shares on the average were taken up every month, there would, at the end of the first 10 years, be 6000 shares subscribed, supposing always that, if any were withdrawn, the average would be kept up by an increase in the new comers. At the end of the first 120 months, or 10 years, 50 would be paid out, but as new members would come in, the number of subscribers

would be undiminished, and month by month afterwards, as successive periods of 120 months were completed, old members would go out and new ones come in.

The Borrowers receive, at the time of obtaining an advance, the full amount of their shares, without any deduction beyond a trifling commission, which is withheld as a contribution towards the expenses and losses; the loan is secured by a mortgage on the property purchased, and in return they pay, during an *optional fixed* number of years, previously agreed upon, a suitable monthly subscription, by which the debt is liquidated with interest. The members who become borrowers, *at once cease to be investors* in respect of the shares on which they obtain advances, and do not participate in any of the subsequent liabilities or expenses of the society, nor consequently in its profits, which in fact they anticipate by obtaining their loans at a moderate and definite rate. The general liabilities are provided for by taking, as the basis of the calculations, a higher rate of interest for the repayments, than is actually guaranteed to the investors for the realisation of their shares; that is to say, if the amount of each share held by an investor, which is promised to him at the end of a fixed term of years, be equivalent to the accumulation of his subscriptions at 4½ or 5 per cent. compound interest, the borrowers would nevertheless be charged about 6½ or 7 per cent. This difference of 2 per cent. in the rate of interest obtained is temporarily withheld from the investors, in order to form a management and contingent fund, for the purpose of meeting the expenses, and contingencies of loss on the mortgages. The customary commission, which is deducted from the loan, is proportionate to the number of years of its duration, and varies in amount with the local circumstances of the place in which the society is conducted. It is regulated by a table, where the advances are made by Rotation or the Ballot; but in the case of the Bidding system, it is replaced by the premium bid per share. A borrower must have been previously an investor, but *immediately* after he borrows, he passes over from one class to the other, receiving then whatever amount is *due* to him on his *investing* shares, as arising from his *past* subscriptions, with interest thereon from the date of his first joining up to the time of his obtaining the advance. The repayments of the borrowers are for a fixed term of years, whatever be the subsequent condition of the society, as it is not reasonable that, when they have once given good and sufficient security for a loan, they should be expected to share in the responsibility of future investments. This is one great improvement upon the old system, where the period of the subscriptions depends on the success or non-success of the association, or upon the contingency of any loss being sustained by it from other property mortgaged to other members —so that in many cases the repayments are extended over several years more than was expected by a borrower when he first effected his loan.

59.—As regards those members who remain investors, the system of periodically* dividing a Bonus from the profits is adopted, which has been found so productive of safety and success to mutual Life Assurance companies. Instead of forestalling the society's profits, by reducing the monthly subscriptions of the investors to such a degree as barely to leave them sufficient, even theoretically speaking, to produce by accumulation the amount of the shares, the safer plan already alluded to is adopted, of keeping the subscriptions sufficiently high to be theoretically and practically adequate to the purpose. Any *surplus* profits, which arise, beyond the promised amount of the unadvanced shares, are periodically and proportionately divided among the investors in the shape of a Profit-Bonus to be paid to them, with the other sums due on the completion of the subscriptions upon each share. The Bonus system thus possesses very great advantages, inasmuch as it preserves to the society the possession of a reserve fund, over which it has power, and whence any unexpected losses may be met.

60.—The borrowers, of course, are not entitled to participate in this Surplus-Bonus, as they have secured the equivalent by the manner in which they obtained their advances. This point appears, since the publication of the first Edition of our Treatise, to have been misunderstood, and several well disposed persons have exclaimed against an apparent disadvantage offered to borrowers by the new system. They should, however, have reflected that the borrower is in all cases, practically, equally well off, since by the very mode in which he obtains his loan, he secures at once the enjoyment of an *immediate* profit which is still only *prospective* to the investor. The money in hand is of at least as much advantage to the borrower as the deferred realisation of his shares can be to the subscriber, who has to wait to the end of his membership. So strong a notion, however, appears to prevail in some places, that a plan of so-called "mutuality," by which Borrowers should participate with Investors in the profits and the losses of the society, is preferable, that, on the ground of expediency, we have in some cases recommended the adoption of a "mutual" plan.

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* [Valuations for the purpose of declaring a Bonus should not be made at less intervals than three or five years. An annual valuation is perplexing and unfair, inasmuch as the amount of new profit annually made by a Building Society varies very largely, being affected by the number of new mortgages granted, the proportion of withdrawals and redemptions, and many other circumstances.

A case is before us of a Building Society which in the first nine years of its existence, declared profit amounting to £17,885. In the tenth year, although £1,922 of this profit which was supposed to have been realised fell in, by forfeiture of Bonus on withdrawal, yet the aggregate balance in favour of the society was only £47, showing a loss in that year of £1,875. If annual valuations are made, a very large proportion of the apparent balance ought to be set aside for an Equalisation Fund, before any profit is actually declared. See on this point the remarks in Part 2 as to *Local Enterprise Encouragement Societies.*]

61.—In a permanent institution of this kind there is little difficulty in obtaining borrowers, for the great objection disappears which is made against terminating societies :—*viz.*, that after a few years of their existence, the duration of a mortgage is too limited, and the loan repayments too heavy to suit the means of the class who are usually members. If the society be permanent, a member can at any time become a borrower, and yet have his advance for whatever period is most suited to his means, the amount of monthly payments required being less as the duration of the debt is extended.

62.—Again, since new members may come in at any time without paying up any arrears, the society will, if properly managed, continually receive a fresh accession of strength from new subscribers, and thus generally possess, at each meeting, funds sufficiently large to be capable of being invested without delay ; whereas, it has been stated before as one of the difficulties in the old societies, that from their being comparatively confined in their action, the funds collected at a subscription meeting are frequently insufficient to meet the wants of any borrowing member, and are consequently left idle and unproductive of interest for, perhaps, some months, until by subsequent additions they amount to the sum required.

The permanent principle therefore possesses several elements, which tend materially to confirm the calculations founded on the *probability of a continuous realisation of interest.*

63.—It is, however, necessary and proper that a higher rate of interest should be charged, in determining the advance repayments, than the investors would be content to receive in return for their subscriptions, in order that some margin may thus be provided for the various contingencies to which these societies are exposed. *These contigencies arise not from the Investors but from the Borrowers.* It is through the loans that losses are likely to be produced, and the borrowers should therefore pay sufficient interest to protect the investors from such casualties. As we have said before, the security offered to Benefit Building Societies is one of much tendency to be of an unsound nature, and out of a large number of such investments, a few bad cases will always arise entailing loss. By charging, however, a sufficiently high rate of interest from the borrowers, the annual receipts from that source may be made large enough, not only to meet the engagements in respect of interest on their subscriptions, which the society has contracted towards the investors, but also to cover any loss arising from bad security or other causes.*

* [We have, since writing the above, met with a similar view of the principle involved, in the well-known *Catechisme de l'Economie Politique*, by the late distinguished J. B. Say, at page 181 of the fourth edition. The substance of his views is as follows :

In societies formed for the purpose of purchasing or dealing with property, which does not consist of land, in or around London, or other large towns, a very fair plan is to take 7 per cent. rate of interest as the basis of the loan repayments, since that rate is sufficiently low to enable a member to purchase a house on comparatively moderate terms, and in consequence of the greater opportunities for other investments, at apparently as high rates of interest, possessed by London residents, which they might consider more secure than house mortgages, it would be nearly impossible to find lenders, or investors, if a lower rate were charged, as (supposing that the expenses, and losses which might arise, absorb 2 per cent. off the rate of interest obtained) they would not clear more than 5 per cent. for their money.

64.—*Again; the expenses, both initial and annual, can be more equitably divided over present and future shareholders.*

First, as regards the initial expenses, instead of their being defrayed by the first series of members, they can be charged as a debt against future as well as present subscribers, and be paid off by a certain fixed temporary deduction from the surplus profits of the society. The annual expenses will in a similar manner be borne by a much greater number of members, than is the case in associations formed on the terminating principle, with this one peculiar additional advantage, that year by year as the society progresses, until the close of the first period of the duration of the investors' shares, the number of contributors will increase, instead of diminishing. (*See Appendix for further remarks on the rate of contribution, which it is equitable to require from the members.*)

65.—In permanent societies, any borrower who desires it, can, under certain practical restrictions, be permitted *to redeem his mortgage* on much more equitable terms than under the old system.

In a society of limited duration, if a borrower, or his family in case of death, before the mortgage is cleared off, make application to pay off the remainder of the debt, a much larger sum is exacted, than would be required on a mere theoretical view of the question, in consequence of the society no longer possessing opportunities of investment for any sum which may be returned on its hands, as the other members are unwilling to borrow, when

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Capital is rendered available, by industrial enterprises, to produce an income under the name of interest. The interest or income from such a source should be separated into two parts. When a sum of money is lent at a much higher rate of interest that that of the public funds, say, at 6 per cent. per annum, only 3½ or 4 per cent. (more or less) can be considered as the payment received from the borrower by way of rent for the hiring of the money. The remainder 2½ or 2 per cent. (more or less) is to cover the extra risk existing in the investment, or is the Premium of Assurance at which the lender (acting as his own Assurer) can incur the chance of loss, to which he is exposed through making his advance upon a security, that is not of the first class.]

the loan can only be obtained for a few years. So that a borrower, who wishes to clear off his mortgage before the close of the association, has to pay not only the net value of the remainder of his debt, but also some compensation for the loss of interest, which will be experienced in those years, during which the money thus returned will remain idle and unproductive in the hands of the society. Hence, instances constantly occur of amounts being required in redemption of a mortgage, which would be considered unfair and exorbitant, were it not for the peculiar circumstances of the case.

In a permanent association, on the contrary, as opportunities for investment abound, the directors would be ready to offer fair and reasonable terms for redemption, in order to increase their power of encouraging the entry of new members by the prospect of an early advance.

66.—On the other hand *the withdrawal of shares* by the Investing members is greatly facilitated.

In terminating societies, persons, who desire to discontinue their membership, cannot do so without much difficulty and delay, because the money they have subscribed is engaged in the society's investments; and as few, if any, new members join after two or three years, the funds received from time to time can only with considerable restriction be paid out on withdrawing shares. Hence, it has been customary to inflict fines, varying from 5s. to £10 per share, on parties withdrawing. *This deduction is severely felt by the poor man, who, when endeavouring to save a few pounds, does not know at what time he may require them; and who from unforeseen circumstances may desire to withdraw some portion of his subscriptions, as the only means of freeing himself from, perhaps, temporary difficulties. Yet, if withdrawals were permitted without restriction, a terminating society could never lend out the whole of the sums invested, as it might be called upon at any time to return an inconvenient portion of them. Consequently, in all the old Benefit Building Societies, the rules attempt to provide against this difficulty by making it not easy to withdraw shares. Moreover, the societies themselves are injured by applications for withdrawal, which they cannot satisfy, as a feeling of distrust is excited which materially affects their subsequent operations. This inconvenience does not exist in the permanent plan, because new members continually enter, and there is always a floating balance sufficient to meet any applications for withdrawal within reasonable limits.

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* [The rules should provide that a member, who has given notice to withdraw, shall not participate in any loss, occurring *subsequent* to the date of his notice.]

67.—The permanent system, described in the foregoing pages, will best be understood by a few examples taken from the rules of a society, founded upon that principle, which has met with great success :—

"The shares of Investing members are *£100 each, for which the sub-"scription is

	13s. 0d.	a month for	10 years	or	120	months.
or [	10s. 0d.	„	12½	„	150	„
	8s. 4d.	„	14	„	168	„]

"They may, however, take half shares of £50, or quarter shares of £25 "each, if they prefer it. Investing members can *withdraw* from the society, "without fine, at any time *after* the first year, when the amount of their "subscriptions will be returned, with interest, varying, according to the "length of time the member has subscribed, from 1 per cent. up to 6 per "cent., according to the following table for whole shares, and so in pro-"portion for half and quarter shares *viz.*,

" Without Profits.	At the end of the first year	£	
	„ 2 years		
	„ 3 „		
	„ 4 „		
	„ 5 „		
	„ 6 „		
	„ 7 „		
	„ 8 „		
	„ 9 „		
At the last or 10th year"			£100 0 0

(With Profits in addition to the £100.")

"Investors may, if they desire it, cease their future payments and leave "their past subscriptions, as a Deposit producing compound interest, to "be received back in one accumulated sum at the end of the originally "selected term of their membership." [The table being calculated by the formula in Section 4 of the Appendix.]

"A Guarantee Fund is also formed, by the issue of Stock, in Shares of "£1 each, which may be paid up at once, or by four quarterly instalments "of five shillings On these Shares interest is paid half yearly, at a "guaranteed rate of per cent.

"Persons intending to borrow must, in order to qualify, previously become "members; and, at the time of borrowing, they will be repaid the sum due "for the past subscriptions on their shares with interest, and then receive, "as a loan, the full amount of any number of shares they may require, "without any deduction, beyond a small commission, which will be carried "to the credit of a management and contingent fund, to defray expenses &c.

"Loans, to the extent of £ , will be made to members on security of "real or leasehold estate, house or land, in any part of England, for 5, 7, "10, 12 or 14 years, as they prefer.

* [In some cases £50, and even £25, would, perhaps, be the preferable amount of each share, as the smaller the sum subscribed, the less the amount of withdrawals.]

"Example—* A member borrowing £100 on mortgage is only required "to make the following repayments, including principal and interest, *viz.*—

"If for	5	years	£2. 0. 8	monthly or	£6. 5. 0	quarterly
"	7	"	1. 11. 0	"	4. 15. 4	"
"	10	"	1. 3. 9	"	3. 13. 1	"
"	12	"	1. 1. 0	"	3. 4. 6	"
"	14	"	0. 19. 1	"	2. 18. 9	"

The repayments of the borrowers are calculated at 6 or 7 per cent. rate of interest, whether the loan be taken for 5, 7, 10, 12, or 14 years, and, although actually paid monthly or quarterly, they are regarded in the calculation as made *yearly* and at the *end* of each year. This creates but a slight augmentation in the amount of the periodic repayments, and yet tends materially to increase the safety of the basis on which such a society is founded.

"The amount of commission deducted is what a careful examination of "the expenses and losses of other similar institutions has shewn to be "necessary and sufficient." (*See the Rules in our Treatise on Copyhold Enfranchisements and Freehold Land Societies.*)

"The *surplus* profits of the society, (over and above the promised amount "of the unadvanced shares,) will be ascertained periodically by an Actuary, "and be apportioned, *two-thirds* to the credit of the investors, to be paid to "them as a Bonus at the termination of their 10 years membership; the "*other third* to be carried to the credit of a Permanent guarantee fund, "formed to meet any loss which may arise. This proportion in the divi-"sion of surplus profits will, however, be varied as may be considered "advisable, after the expiration of the first nine years of the society's "existence.

"There will be no loss from bidding. Should there be more applicants "for advances than can be supplied at one time, priority will be settled by "ballot (or rotation.)

"The receipts arising from the entrance fees, fines, &c., will all be carried "to the credit of the management and contingent fund, out of which the "different expenses will be defrayed.

"As an example of the working of this society:—Suppose a person desires to "purchase a house for £300, which would return a *net rental* of £30 per annum, "and that he has been an investing member one year before he applies for the ad-"vance. He must hold 3 shares to borrow £300; and in this example suppose "that he has paid one year's subscriptions on each of the 3 shares.

"By the table of withdrawals he is entitled to 3 times £7. 16s. 0d., or £23 8s. 0d., "in return for his past subscriptions. This sum he receives, at once, if he desire it, "with the £300, and, ceasing to be an Investor, he borrows the £300 on the terms "of the table of repayments for Loans, for which only he gives security.

"If he effect this Loan for 10 years, his repayments, including principal and "interest, will be £3. 11s. 3d. a month, or annually	£42 15 0
"Multiplied by 10 years.	10
"Making the total re-payments	£427 10 0
"Deduct 10 years' rent (paid or received)	£300 0 0
"Leaving the cost, as far as the Benefit Building Society is concerned,	£127 10 0

* [The mortgage-deed must be for a term certain, as in the case of annuities secured upon property. It will be different from the ordinary deed of the Terminating Building Societies.]

"For which sum the member has thus secured to his family a house, free "of rent, for the remainder of its lease. The above example is for 10 years. "The purchase, however, may be effected by smaller annual payments, if "the Loan be taken out for 12 or 14 years.

"The deduction for commission, and the law expenses, must be provided "for from the £23. 8s. or other private source. They of course add to the "expenses of the purchase, but *it should be remembered that the payments* "*of the borrowers* can in no way be *increased* or *extended* beyond the *speci-* "*fied period* for which the loan is taken, as is the case in the *old societies.*

"Taking an example from one of them whose shares are £120, upon "which, in the first year, a borrower would receive only about £55 in cash, "and occasionally much less, he would be required to pay 14s. per month "per share, or 8*l.* 8*s.* 0*d.* per annum, until the close of the society, which "is more likely to extend to 14, or even 16 years, than to terminate in 10 "years; but, confining the question to 10 years, in order to obtain a loan "of £300, he would have to pay a subscription upon five and a half shares, "amounting to 46*l.* 4*s.* 0*d.* a year; whereas, in this society, it would cost "only 42*l.* 15*s.* 0*d.*"

68.—In the permanent plan just described, the period of the Investors' subscriptions may be 10, 12, or 14 years, or even longer or shorter without affecting the principle. Either would answer equally well, and the result would be the same to an investor whatever term were adopted, if the basis of the subscriptions were upon the same rate of interest. We recommend, however, that, to avoid complication, in no society should the investors have more than one or two periods for the realisation of the unadvanced shares, and their monthly subscriptions should not be less, than what would be required to produce them by accumulation in the stated time, at 4½ or 5 per cent. compound yearly interest. Although it is not possible, a priori, to estimate the amount of *surplus* profit, which will remain at the end of each period, when the expenses and any losses that may occur have been provided for, yet it is reasonable to expect, that if the society be carefully managed, each investor will receive a Bonus in addition to the originally promised amount of his share. What that Bonus will be must depend on the success of the association, and every member will, therefore, find it to his advantage to add his individual efforts in promoting its prosperity. The Management and Contingent Fund will be amply adequate for its purpose, since it will include not only the entrance fees, fines, and commission deducted from the loans at the time of an advance, but, moreover, a fluctuating reserve on each £100 share, arising from the circumstance, that the annual subscriptions paid by an investing member, *viz.*, 13s. a month or 7*l.* 16*s.* 0*d.* a year, are invested at 7 per cent. compound interest, and in the case of its being realised monthly, the reserve in 10 years would be as high as £11 per share.—*(See Section IV. Appendix.)*

69.—An improvement might be effected in the pecuniary position of the Borrowers, by which greater facilities would be afforded to them to realise benefit from Advances. For the first year after his purchase, a borrower is, in most cases, scarcely able to complete the necessary arrangements connected with the furnishing his house, &c.; and he experiences some difficulty in providing for the increased payments, which begin at the end of a month from the time of his obtaining a loan. The original object of Benefit Building Societies, *viz.*, to enable the industrious poor to become possessors of their own homes, would be accomplished, with greater certainty and less inconvenience to the parties concerned, if the monthly repayments upon advances did not begin for a year after the same had been granted. The borrower would thus have time to look about him and to settle comfortably in his purchase; and the society would merely have the repayments deferred for one year, or for whatever other time might be agreed upon. In the Appendix the formula is given for the rate of contribution suitable for a loan so granted.

CHAPTER V.

THE PRACTICAL MANAGEMENT OF A BENEFIT BUILDING SOCIETY

ART. 70.—After recommending the adoption of the Permanent instead of the Terminating principle, in the formation of all Benefit Building Societies, and the conversion into Permanent Societies of those Terminating ones which yet remain, it may not be out of place to add a few remarks, relative to their subsequent practical management.

At the commencement, great care ought to be exercised in the judicious selection of suitable persons as officers. The most important of these are undoubtedly the *Solicitor* and *Surveyor*, from their influence, for good or evil, on the operations of the society; for it is upon their testimony respecting the soundness and adequacy of the security offered for an investment, that its safety and prosperity entirely depend.

When a member is desirous of purchasing a house, or other similar property, he makes application to the directors, who instruct the surveyor to examine and report on the nature, position, and value of the proposed purchase. If these be satisfactory, they then direct the solicitor to examine into the right of sale or title which the seller possesses. Should this also prove unexceptionable, the money is advanced for the purchase, its repayment being secured by a mortgage on the property for an agreed term of years. Let us now examine the position of the Benefit Building Society with respect to this investment.

If, at some subsequent time, before the mortgage is cleared off, the borrower were to discontinue his payments, the society would be under the necessity of seizing the property and reselling it, in order to recover the remaining amount yet due to it. Thence would arise various chances of loss.

It may happen that the locality in which the property is situated may have diminished in public estimation, as is frequently the case with many parts of London and other large towns; or the necessary repairs to which any new Purchaser would be exposed, if they have been neglected by the late occupier, might be found too heavy. Perhaps by a wilful mis-statement or an error in judgment on the part of the surveyor, the house may have been estimated at more than its real value; or, lastly, some defect in the original title may be discovered. In any one of these cases an attempt to resell the property would occasion loss.

71.—Now these contingencies may in a great measure be averted by the selection of an efficient Committee, and of careful and respectable officers. An excellent arrangement exists in a society at Carlisle, by which those duties which are usually performed (or neglected) by the Committee, are distributed among a series of separate officials. The Committee consists of six, and undertakes the general management. Four money-stewards are appointed to attend the receipt of money, and to be responsible for its being duly accounted for. Four Inspectors, also, to examine the securities prepared for Advances. No member is liable to serve two of these offices at once.

The usual system, however, is to confide the whole management and supervision of the society's affairs to one Committee, who are assisted by a Solicitor, a Surveyor, a Manager, Auditors, Arbitrators, and Trustees. We proceed to make a few remarks on the duties appertaining to these several offices:—

1st. As regards the SOLICITOR, who examines the title to the property. This branch of law business, which is technically called "conveyancing," is one of great intricacy and difficulty, and requires peculiar skill and experience in the person who undertakes it. The title-deeds to property are often much involved, or present flaws and deficiencies, which can only be detected by searching and patient inquiry. On the other hand the prosperity of a Building Society, the security of its investing members during the continuance of a mortgage, and the subsequent undisturbed enjoyment by the borrower of the property purchased, depend solely and entirely upon the validity of these titles, and the correct appreciation of the property they represent.

For these reasons, the selection of a competent solicitor is one of the most important duties which belong to the directors of the society.

The person chosen should possess both experience and talent; he should be a man of integrity and firm principle, incapable alike of being influenced by motives of interest or feelings of private friendship; and, besides these indispensable qualifications, he should, if possible, in common with the other officers of the society, be possessed of a good connection.

72.—To secure the services of a person thus qualified, an adequate and liberal remuneration must be offered, instead of the insufficient fees, which are sometimes tendered by Building Societies to their solicitors. The recompense should be proportionate not only to the actual value of the work done, but also to the heavy responsibility attached to the office which they hold; for, should the society sustain any loss through the inaptitude or carelessness of its solicitor, he is legally liable to make good the deficiency. Examples of this will be found in our chapter of Law cases, under the title SOLICITOR.

73.—Besides the necessity of offering an ample remuneration to the solicitor of a Building Society, it is also essential that the amount of his fees, whatever it be, should be fixed before hand, at the time of his election to the office.

74.—2ndly. The SURVEYOR of the society stands next in importance to the solicitor, his duties being attended with great difficulty, and considerable experience and judgment being requisite to enable him to form anything approaching to an accurate estimate of the pecuniary value of property.

This value will depend on several varying conditions. The tenure by which the property is held may be freehold, copyhold, or leasehold; in the latter case the number of years yet unexpired in the lease must be taken into consideration. The neighbourhood in which the property is situated may be likely to rise or fall in public opinion. Any estimate, calculated on the amount of rent actually paid, is little to be trusted, as attempts are not unfrequently made to mislead the surveyor, by letting the property at a nominal rent much larger than is actually paid for it.

The surveyor, therefore, must not only be able to estimate the materials and cost of erection, but he must be well acquainted with the locality in which he is employed, and he must have sufficient experience to enable him to detect the artifices, by which the vendors of property endeavour to exaggerate its value.*

* [The following useful hints to purchasers of house property are given by Mr. Truman. They should ascertain—

1st. That the house is not built on made soil, where the gravel has been dug out and sold.

2nd. That it has concrete foundations, of proper depth.

The false estimates, which are sometimes productive of so much loss to Building Societies, are not always the fruits of incapacity or inexperience. Cases have occured of compacts between the surveyor and the vendor or the purchaser of property, or even some officer of the society, to share between themselves the profits of an unfair valuation.

To guard against the possibility of such fraudulent practices as these, a man of high moral integrity should be chosen; and he should, as well as the solicitor, be liberally remunerated for his services.

75.—Several expedients have been adopted, with the view of obtaining a check on the estimates of the surveyors of Benefit Building Societies. It has been recommended that they should be paid out of the ordinary funds of the society, instead of by the borrowing members individually, so as to destroy any reciprocity of action or feeling between them and the mortgagors of property. Some societies appoint a survey committee to act as a check between the surveyor and purchaser, and a regulation has been proposed to prevent any subsequent transfer of property, from a member to the surveyor, or to any individual of the survey committee. All these may be useful as auxiliary measures, but the necessity for them will be much diminished by a previous examination into the character of the person employed.

76.—3rdly. The MANAGER.—We have placed the Solicitor and the Surveyor of a society first in importance on the list of its officers, because we believe that, provided they are unexceptionable, and the manager be an honest, intelligent, and active man, little more is wanting to carry on with advantage an institution formed on a correct basis as regards its rates of subscription. It is, however, essential that any person proposed as a

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3rd. That all the materials are new, and the bricks not place.

4th. That no iron chimney bars supporting the arch are absent.

5th. That the drainage is distinct and separate, properly connected with the main sewer.

6th. The strength of joists, quarterings, lintels, thickness of doors, floor-boards, panelings, in short quality and quantity of timber used. It is truly frightful to see how slightly houses are sometimes timbered.

7th. Whether grates, locks, and ironmongery are of the very cheapest description, unfit for wear.

8th. That it has a trap-door and fire-escape to roof.

9th. Avoid zinc gutters, cistern flats, &c., as zinc is a very temporary affair; insist upon lead or stone cisterns, &c.

10th. Find out if it is an estate where any scamping is allowed to create heavy ground rents and repairing leases.

11th. Investigate the title; see it is good and indisputable.

12th. If the parish has not taken the road, have money security for its costs from the seller.

Lastly. Insist upon a warranty (legally drawn up) with full specifications attached, and subject to penalties if not complied with.]

manager should be thoroughly acquainted with the fundamental principles of compound interest, and the practice of tables relating thereto. Much mischief and inequitable dealing has occurred in several of the existing societies, from the ignorance of their managers on that subject; and it would be well if some regulation were enforced, requiring that every person, who intends to become the manager of an association in which the savings of the poor are engaged, should first obtain from competent persons a certificate of his qualifications for the office. Since not a little depends on the zeal and attention with which the manager performs his duties, it is but reasonable that he should be paid as his exertions demand. Experience has long shewn that it is a sorry and false economy, not to give an adequate remuneration to men, who superintend the affairs of important institutions.

77.—One duty of the manager must specially be mentioned. He should make himself perfectly master of the Rules of the society, and the bearing of each clause upon the various matters of business, which he will have to submit, from time to time, to the Board of Directors at their periodic meetings. It cannot be expected that the Trustees or Directors should be as cognizant as their deputy of the practical effect of regulations, which they meet only at intervals to carry out; the responsibility therefore rests, very properly, on the manager; and he should be aware of the duties of his office, otherwise his society may fall into those positions of difficulty and even litigation, from the evil effects of which many institutions have greatly suffered.

78.—4thly. The AUDITORS of the society occupy also very responsible situations. The members entirely rely upon their careful examination, from time to time, of the accounts and balance sheets. Not only is it their duty to see that correct vouchers are produced corresponding to the items of expenses or receipts, but they should examine strictly into the formation of the annual or more frequent balance sheet, purporting to shew the pecuniary position of the society at the time of audit. Upon the faith of the statements contained in these balance sheets, it is customary for the directors of the institution to found their report of its progress. By erroneously placing sums to the credit of profit, which are not such in reality, subsequent loss has been created. [*See the following Chapter.*] For this reason it is of urgent necessity, that the auditors should be careful and experienced persons, well versed in the practice of book-keeping and the calculation of interest. In Part 2 of the present work, relating to Local Enterprise Encouragement Associations, we discuss at length the whole system of Audit in Public Companies, and recommend a more efficient inspection as necessary for the prevention of

fraud, and for applying a speedy remedy to defects of management. The system we there advocate is equally applicable to Benefit Building Societies, and its adoption would be found of great advantage.

79.—5thly. The ARBITRATORS.—As to these officers, see our Legal Chapter under the heading ARBITRATION.

80.—The TRUSTEES of the society, though last on our list, in reality are the most prominent, if not the most active of its officers. We may judge of this, from the fact of their names being so frequently paraded as evidence to the public of the general respectability of the association, and from the popular impression that they are numbered amongst its responsible officials. The high and recognized standing of many trustees leads us to wonder at the readiness with which they accord their names to uncertain schemes, and their being so unmindful of the injury likely to be caused by their imprudence to the public at large. [*See Art.* 42 *page* 23.] To correct this evil, a knowledge of the usual duties of their position, we are confident, is alone necessary. A slight degree of watchfulness, exercised in a properly constituted association, will protect them from sharing in the reprehension that otherwise would be justly due to them. As trustees of the society they should insist upon a strict adherence to the Rules established for its government, and also *upon security being given by those officers, who act as recipients of the members' money.

81.—Turning from the officers of the society to the details of its practical working, we shall next examine several points respecting which there is considerable difference of opinion; even among persons who are most experienced in building society transactions.

With reference to the mode of granting advances to members, when there are applications for loans exceeding the amount of money which can be lent, three plans exist; *viz.:* either by *Bidding*, *Rotation* (that is, seniority on the list of applicants), or by *Ballot*. The two first appear to present more objections than the third, although it is extremely difficult to decide, what system can be adopted as likely to be entirely free from inconvenience.

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* [Benefit Building Societies, we are told in this work, which may be considered the grammar of the system, are mainly intended for the benefit of persons of very moderate means; and yet their cash transactions are not upon the footing of that public respectability, which gives security, as for instance, in a bank. This is the first point to be considered; for even the wild miscalculations pointed out in some Terminating Societies will merely involve partial loss, or carry on their duration beyond the period specified. There must be security for the intromissions of those who are in any way concerned in handling the money of the company, or the wisdom with which the plan may be conceived will be no guarantee against ruinous loss. [*Chambers's Edinburgh Journal—Extract from Review of our Treatise on Building Societies.*]

82.—The plan of determining by *Bidding* who is to have the preference for an advance, consists in putting the sum proposed to be lent, up to auction among the members, and in finally allotting it to that person who offers the highest discount for it. This may be explained by an example: —In a 10 years society, suppose there is a sum ready to be advanced. The Chairman puts up, say, one share of £120, and enquires what discount will be allowed for it. The members present hand in written biddings to him, and he declares the highest discount offered; upon which the bidding is commenced a second time, and the result is again declared; and, finally, a third trial is made, and the advance is allotted to the member who has offered the largest discount. By this plan, members who had no intention to borrow, have had the power of raising the discount offered, by bidding during the first and second trials and abstaining the third time; the profits derived by the non-borrowers increasing with the magnitude of the discount obtained. An attempt has been made to remove this objection by causing the biddings to be made by word of mouth, as at a public auction, and by only allowing one trial. The system of bidding, however, may still cause borrowing members to obtain advances on most inequitable terms, unless a limit be placed to the price, which they can offer. Cases continually occur, where discounts, for £120 shares, are given as high as £70 and even £80 in the first year. By this means the borrower receives only £50, or even £40, at the beginning, in lieu of £120, the full amount of his share at the end of the society. And, as he has to pay 14s. a month, for 10 years, or 8*l.* 8*s.* 0*d.* a year, his advance costs him considerably over 10 per cent. rate of interest.

83.—It is necessary, however, to caution the societies which adopt the Bidding system, or indeed any system by which a large discount or commission or premium is deducted from an advance at the time it is made, against representing the amount so deducted as immediately realised profit. The only light in which it can properly be viewed, is as a fund for increasing the interest to be received by the society on the Loan, and so providing an extra protective margin on the future repayments against loss on the security. For example, if a Loan nominally of £100 be granted at 5 per cent. for 10 years, and a discount of 4*l.* 14*s.* 0*d.* deducted, the rate of interest realised by the society on the actual money advanced, is 6 per cent. Again, if the rate of interest nominally charged be 7 per cent. and the discount 8*l.* 12*s.* 0*d.*, the interest actually realised is 9 per cent.

84.—Between the Rotation or Seniority system, and Balloting, it is dificult to make a choice. By the first a member puts his name down on

the list of applicants, and waits his turn for an advance. If the society has been some months in existence, when he joins or wishes to borrow, he may have to wait a considerable time before he obtains the loan he desires.

85.—By the *Balloting* plan, the names of all the applicants are placed together in a ballot-box, and one is drawn out by lot, to whom preference is given. To this last arrangement the modern societies seem to incline, because, without the enormous losses consequent on the *Bidding* system, and the delay certain to attend that by *Rotation*, each of the borrowing members individually has a chance of being fortunate enough to obtain the first right to an advance.

As the names are drawn out of the ballot-box a list is formed in the order of which the loans are to be granted. If there be not money enough to suit all the applicants at once, those members whose names remain on the list have preference at the next advance before any subsequent ballot, provided they have been six months in the society.

86.—It has been imagined that the system of Balloting is not legal, inasmuch as it might be considered a species of lottery. Such an impression is entirely without foundation, since the ballot is merely introduced in a permanent Building Society for the simple purpose of collecting for an individual preference the names of the members, who desire to become borrowers and receive advances, for which each and all have to pay after the same rate of subscription and interest; no favour in respect of repayment being obtained by any. The ordinary lotteries were very properly prohibited from very different motives, because they encouraged a system of gambling, by which one man was made rich, while his less fortunate rivals became impoverished. No analogy exists between the two cases.

If the Bidding or Rotation plan be preferred, there would be found no difficulty in applying either to a permanent Building Society, but a clause should be introduced to obviate too great improvidence on the part of competing borrowers in the former case, or the disheartening delay of the latter system.

87.—With respect to the important question, how the *surplus bonus* to Investing members should be ascertained and divided, errors of a grave character are frequently committed by societies. It appears to be thought by many that when a Valuation has been made of the future Repayments remaining to be received from the borrowing members, the whole of the surplus shown may be taken to be realized profit, and allotted to the Investing Shares accordingly. If any portion is reserved to a Guarantee Fund, that portion is frequently fixed at a very small amount, such as £100 or £200. The necessity of ample and liberal reserves, is one which practical advisers find the greatest difficulty in enforcing on the managing

bodies of Building Societies. Every estimate of the present value of the mortgages assumes necessarily that the Repayments will be punctually kept up, and until that has been proved to be the case by the complete discharge of the securities without loss to the society, the surplus profit on the transaction is not, in point of fact, realised. If the whole of the calculated surplus, therefore, be divided, and the members, who were in the society when the mortgages were granted, complete their shares and receive their Bonus, then, should loss subsequently arise on those mortgages, it would have to be borne by the members entering after they were granted, attracted probably by this fallacious estimate of profit. The amount of reserve to be deducted, before an actual division of profit, must be determined in each case by the circumstances of the society, and the length of time the several mortgages have still to run, but to divide profits without making an ample reserve for contingencies of loss, is a highly dangerous proceeding.

88.—In *the general conduct* of the society it ought to be borne in mind, that, at its commencement, a liberal yet careful outlay is requisite, to give due publicity to its principles in the districts over which its operations are proposed to extend. The preliminary expenses may perhaps be large in amount, but where they have been judiciously incurred, they are sure to be amply repaid by the future extent and importance of the institution. In order to effect legitimately and advantageously the main object of Benefit Building Societies, care should be taken that the personal interests of no individual member are sacrificed by the adoption of any unjust regulations, which may have been introduced for the special advantage of another. As the chief aim is to provide a home for those, who otherwise might not be in circumstances to obtain it, the amount of available funds during each year should be so apportioned as to supply the greatest possible number with advances. Where a member has pecuniary means of his own, he ought readily to apply it towards part of his purchase, so that his less fortunate neighbour may participate to the fullest extent in the assistance which the society can afford him.

Again, there is in general less spirit of speculation on the part of a borrower, who intends to occupy the house himself which he desires to buy, and it is found by experience that more substantial property is offered for security in such cases.

89.—It is desirable that no meeting of the society should ever be held at any tavern or public house. The members may save much money by the adoption of this rule. They may do more: they may deliver themselves from the temptation to form habits of intemperance and useless expenditure, which, to view them in no worse light, well nigh counterbalance all the advantages to be derived from these institutions.

90.—*The Rules* should be framed by persons well versed in the principles and practice of Benefit Building Societies, so that the advantages of both sound and new features may be secured. All such provisions, as experience has proved to be productive of loss or inconvenience, must be excluded. The set of rules in our Treatise on Copyholds are applicable to the proposed permanent plan, which we have prepared, of a Building Society, and may be adapted to the circumstances of particular localities. They have been carefully modified, since the publication of our first draft set in 1847, by the results of uninterrupted experience, and by valuable suggestions communicated by the certifying Barrister for England, Mr. John Tidd Pratt;* and we recommend them as providing a sound basis for any society, although we are far from believing, that they should be adopted, without modification, as fitted to every part of the country.

91.—The promoters of new societies should carefully abstain from engrafting corrections upon the draft rules in question, which their inexperience may prevent them from perceiving, might have the effect of utterly destroying the connected link of principles by which the various clauses hinge upon each other. That this caution is not unnecessary, we may mention, by way of anecdote, that one of the most flourishing societies at present in Middlesex, had to go through the expensive operation of a revision and fresh registration of its clauses, after a great number of copies of its prospectuses and rules had been printed ready for circulation This arose from the promoters having adopted the general characteristics of our first draft set of rules, upon which they had made such fanciful alterations, that the system in their hands became a chapter of inconsistency; and they were put to expense in retracing their steps, which in great measure might have been obviated by a more legitimate proceeding at first.

92 —Particular care should be taken in the rules to define accurately the method of distributing Bonuses out of surplus profits among the members.

In many societies, the rules relating to profits are drawn so carelessly, as to give rise to much dissension and dispute between the members as to the interpretation to be placed upon their provisions. It is the more

* [The certifying barrister in Ireland is Mr. J. Lysaght Griffin, and in Scotland, Mr. A. Carnegy Ritchie. The annual reports of both these gentlemen on Friendly Societies, like that of the senior official in England, contain much matter of great interest. It cannot be too strongly urged upon the public mind, however, that their province does not extend beyond certifying the *legality* of the Rules proposed to be adopted by a Society:—the certificate is no evidence of the practical soundness of their provisions. These provisions may be such as to render disaster certain, and yet present no legal flaw for the certifying Barrister to discover.]

important that care should be taken on this point in the first instance, that there is difficulty in afterwards altering a rule relating to profits where vested interests exist.

93.—The Directors should be cautious not to offer too much discount on shares paid in advance. It may be safe to hold out a promise of accumulations from interest, by the end of a term of years, at even 5 per cent. or more; but it does not follow that it would be equally so, to allow 5 or 4½ per cent. discount on money tendered in advance. The distinction is obvious:—in the one case, the undertaking is simply to give the result of the interest after it has been realised; in the other, the equivalent is parted with at once and a grave responsibility unnecessarily incurred of so investing the money received as to recover the discount (or forestalled interest) paid in advance.

☞ [*For amendments necessary in the Law of Benefit Building Societies, see the Preliminary Remarks to this Volume.*]

CHAPTER VI.

THE BALANCE SHEETS OF BENEFIT BUILDING SOCIETIES.

ART. 94.—We have mentioned before, that it is customary for all Building societies to produce, once a year at least, a balance sheet relative to the state of their pecuniary affairs, which is certified by the auditors as correct, and generally concludes with an estimate of the improvement in the value of the shares, attained by the operations of the preceding year. It is evidently of the greatest importance, that such statements should be accurate, for, if a fictitious amount of profit be declared, the directors, not being aware of the error, are induced to make a corresponding augmentation in the entrance fee, to be required from any one, who may subsequently desire to join the society, and to participate in the supposed profits; the effect of which would be to deter persons from entering, and the scope of the association would be curtailed. The existing members also would conceive a false impression respecting the pecuniary value of their shares; and, if any of them should desire to withdraw from the society before its termination, they would expect, and the directors might be led to pay to them, a premium equivalent to the profit declared, which, if it be overrated, must be prejudicial to the interests of the general body of shareholders. Considerable sums are in this manner frequently paid away in the early stages of societies under the name of bonus, which create an irreparable deficiency in the accumulated funds at the epoch of their intended termination. In a variety of cases, which have come before our notice, this mischievous circumstance has occurred, and has been found to have produced a most unfavourable effect on their financial position.* Moreover, many members who might be disposed to seek for advances, imagine that, if so large a profit can be made so soon, they surely would have to pay too high a rate of interest for the loan desired. They become

* The case is similar in its effect to that of a bankrupt tradesman, whose assets would enable him to pay 15*s.* in the pound to his creditors, but who, by giving 20*s.* to some of them at first, leaves but 10*s.* in the pound to those who are paid afterwards.

consequently dissatisfied, and do not borrow. Nor is the pernicious effect of these erroneous estimates confined to the members of the society, in which they occur. The false experience and superficial success, thus created, are quoted by the promoters of new associations formed on the same scheme, and serve both as an excuse for copying it, with all the errors it contains, without further inquiry into its safety or practicability, and as a means of attracting members eager to participate in similar advantages.

95.—Such are the evil consequences attending an inaccurate statement of the position of a society at the end of any year; and, yet, in many instances, the Balance sheets contain mistakes equally important with those, which are found in the rules and rates of subscription.

The main source of error consists in the practice of inserting the whole nominal amount of a share, for instance £120, as having been lent in cash to a borrowing member, when probably he has only received £55 or £60. This is obviously incorrect, since it matters not what is the nominal value of the share, but merely what present sum in money has actually been advanced upon it, in lieu of the full amount, which the shareholder would otherwise be entitled to claim at the close of the society, and for which advance he has to pay a monthly annuity for a certain number of years.

96.—In general, the only profit, which can be apparent in the annual statements, is that resulting from the *interest* already obtained through investing the subscriptions in loans; and, as such, is merely what was assumed as probable in the fundamental calculations. By the accumulations of interest, year by year, the expected amount of the shares can alone be realised, and the yearly profit thus produced is not a matter of congratulation, as if it were unexpected, but simply the means, by which the suppositions, forming the basis of the society, are rendered true. Hence, if profit at the end of any year be shewn, it cannot be carried to the credit of any but the *investing* or non-borrowing members, who are making their monthly payments in the hope of receiving, at the end of a certain number of years, the promised accumulation of their subscriptions and compound interest thereon, which together are represented by the shares they hold. The borrowers having cancelled their shares by the loans obtained, are not interested in or entitled to, any portion of the profit or interest realised.

97.—The question, however, may be said to present some difficulty of conviction, as it is frequently objected by Borrowers, that as, in a Terminating Society, they are exposed to participate in any losses, which may affect its duration, it would be but fair that they should also share in the pecuniary prosperity of the association. To this, which is but another proof of the evil of high-flown balance sheets, it can be only answered, that, as they have received their shares in advance, and frequently on very favourable terms, they should not afterwards claim a part of the profits, by which alone non-borrowers can expect to receive an advantage from the society equivalent to that already secured by the borrowers. Moreover, practically, the Borrowers are greatly benefited, in the end, by a *non*-participation in the annual profits; inasmuch, as the more rapidly the unadvanced shares improve in value, or progress towards completion, the sooner will the society arrive at its termination, and the sooner they will be entitled to cease their payments, and to have their deeds returned to them endorsed with the usual receipt.

98.—The plan, hitherto adopted, of making a Balance sheet serve to give an estimate of the profit annually realised on the shares, is productive of the greatest confusion. The terms Dr. and Cr. tend to mislead, if the figures under their head are considered

relative to profit or loss experienced. A balance sheet merely supplies information as to the items of money received, and the mode in which such receipts have been disposed of. It can express no opinion, as to whether any advantage or disadvantage has been derived from the way in which the money has been laid out, but simply conveys the facts as they have occurred; and, as such, it is useful and necessary for the protection of the shareholders, because it shews clearly how the pecuniary affairs of the association are managed. In the other point of view it is not of much value, as something more is required, than a mere statement of money received and money spent or invested, to attain a satisfactory knowledge of the position of the society, as regards profit or loss incurred. When the Auditors see under the head of Cr. a heavy item for expenses of management, it does not occur to them that so much money is sunk and gone from the society for ever; the money is accounted for, that is all.

99.—To arrive effectually at the actual value of the shares, an annual valuation of quite a different character should be made, on the same plan as that adopted by Life Assnrance companies; by which, not only the sums received, and then invested or spent, or paid out on withdrawal, are considered; but the *present value* also is estimated of the profit to be expected from the advantageous nature of the society's investments in the advances to the borrowers, relatively with the *present value* of its engagements in respect to the shares held by-non borrowers. This is not the business of a mere balance sheet, but must be effected by a correct mathematical calculation, in which the expected duration of the subscriptions, and the interest actually realised, are taken into account.

100.—This distinction has been overlooked by several writers in periodicals treating of this subject, who, in reviewing balance sheets, appear to believe, that in order to ascertain correctly the yearly profit or loss of a society, it is sufficient to form a profit and loss account, placing on the one side the various items of receipts from entrance fees, redemption fees, fines, &c., and on the other side the expenses, and to consider the balance, whichever it be, profit or loss, as representing the true value of the shares. The same rule being applied indiscriminately to every description of Benefit Building society, without any reference to the essential consideration, as to whether the rates of investors' subscriptions or borrowers' repayments are adequate to the originally promised results. The members, however, can feel no security, respecting the actual progress of the society and their own future liabilities, unless an accurate estimate of the profit and loss experienced by it be made from time to time; and we would strongly impress upon them the necessity of insisting on the production periodically of a complete valuation of the position of the society, distinct from the ordinary balance sheet.—[*See Schedule C, Art.* 103.]

101 —Having mentioned the correct method, which ought to be adopted, we will proceed to give three specimens of balance sheets taken at random from a number of similar reports, for the purpose of shewing how they have hitherto been prepared; and to draw attention to the injurious effect of exaggerated declarations of profit.

102.—It is essential to bear in mind that the mischief, produced by an erroneous view of the profits of the society, is even more serious in the earlier stage of its existence than afterwards, as the loss created by paying away money in the shape of Bonus to persons withdrawing, is increased with the number of years yet remaining of the proposed duration of the association. For example, suppose £500 be declared by way of Profit at the end of the 3d year of a 13 years society, which is realizing an average rate of interest of 7 per cent.; since money doubles at 7 per cent. in 10 years, the £500 profit,

if paid away when declared, would cause a deficiency of £1000 at the end. As no evil is, generally, without a remedy, so immediate steps may serve to restore the association to its sound position. We, therefore, urge upon the Directors of all such societies to have their last balance sheet carefully re-adjusted, and the basis of their subsequent statements settled upon correct and intelligible principles. The matter presents comparatively little difficulty, and a downward course of injudicious payment of supposed profit out of capital may be stayed. They would thus be enabled not only to ascertain satisfactorily, from time to time, the precise value of the unadvanced shares, but also to determine the probable duration of the borrowers' mortgage-repayments; a point in itself of vital importance to that responsible class of members.

BALANCE SHEETS.

No. 1.

Extract from the first report of the ——— Society. Shares, £120; monthly subscriptions, 10*s.* per share (see page 23) :—

"The directors have to congratulate the members on the success which has attended the operations of the society during the past year—a success which verifies the correctness of the prospectus issued at its formation.

"The balance sheet shews the superior advantage of building societies over other modes of investment; for if the amont received had been placed—say in a savings' bank, the profit would have been about £43., or 1*s.* 10½*d.* per share; while by the legitimate operations of the society, the profit secured has amounted to 2738*l.* 18*s.* 8*d.*, or 6*l.* 0*s.* 9½*d.* on the £6 per share paid,—making the present value 12*l.* 0*s.* 9½*d.*"

Copy of the balance sheet annexed to the report, given verbatim:—

"*Dr.*					
Entrance money	£70	2	6		
Subscriptions in advance	1	0	0		
Subscriptions for twelve months	2530	10	0		
Forfeited shares	2	0	0		
Fines	12	1	0		
Transfers	9	5	0		
Postage	2	11	0		
Interest	21	12	10		
				2649	2 4
Premiums (or discount) on 33 (£120) shares taken up	1016	5	0		
Premiums on 12½ shares not taken up, but for which the society has funds	764	10	0		
				2680	15 0
"*Arrears:*					
Subscriptions	190	10	0		
Fines	17	16	0		
Interest	2	0	0		
Postage	1	1	6		
				211	7 6
				£5541	4 10

"*Cr.*

By formation expenses, including enrolment of rules, and deed boxes				£25	14	2			
Manager's salary				50	0	0			
Postage				5	12	0			
							81	6	2
By mortgage property				480	0	0			
" "				240	0	0			
" "				240	0	0			
" "				2040	0	0			
" "				960	0	0			
				3960	0	0			
By arrears of subscription	£211	7	6						
Premiums	764	10	0						
Cash at bankers	524	0	10						
Cash in manager's hands	0	0	4						
				1499	18	8			
							5459	18	8
							£5541	4	10

To balance in favour of the society brought down	£5459	18	8				
Deduct subscriptions on 453½ shares, at £6 per share	2721	0	0				
Net profit realised	£2738	18	8	= to 6	0	9½	per share
				Cash paid 6	0	0	
The present value of each share				...£12	0	9½"	

The directors, in the above, congratulate the members on the success of the society, which they affirm is manifested by the profit, 6*l.* 0*s.* 9½*d.* per share, realized in one year beyond the £6 year's subscription paid, a result equivalent to more than 100 per cent. interest for the money.

This statement is, however, not correct; and the error arises from the *whole nominal amount* of the 33 *advanced* shares, or £3960, being entered to the Cr. as having been lent in mortgage, whereas in reality the *difference* 2043*l.* 15*s.* 0*d.*, (between £3960 and the *discount* or *premiums* 1916*l.* 5*s.* 0*d.* given by the borrowers for the loan) is all that has been advanced. Moreover, the item 764*l.* 10*s.* 0*d.*, respecting the shares *not taken* up, but for which premiums have nominally been given, has obviously nothing to do with the business of the *past* year, and ought not have appeared in the balance sheet.

These considerations change the result:—The following is a copy of the preceding balance sheet, arranged as it *should* be; *viz.*: by placing only the money *actually received* or due for arrears on the one side, and money *actually paid* on the other.

"*Dr.*					
Entrance money	£270	2	6		
Subscriptions in advance...	1	0	0		
Subscriptions for twelve months	2530	10	0		
Forfeited shares	2	0	0		
Fines	12	1	0		
Transfers	9	5	0		
Postage (received from members)	2	11	0		
Interest	21	12	10		
				2649	2 4
"*Arrears:*					
Subscriptions	190	10	0		
Fines	17	16	0		
Interest	2	0	0		
Postage	1	1	6		
				211	7 6
				£2860	9 10

"*Cr.*						
By formation expenses, including enrolment of rules, and deed boxes		25	14	2		
Manager's salary		50	0	0		
Postage (year's expense to the society)		5	12	0		
					81	6 2
By 33 shares taken up, value at £120 each		3960	0	0		
Less the discount (or *Premiums*)		1916	5	0		
		2043	15	0		
By arrears of subscription	£211 7 6					
Cash at bankers	524 0 10					
Cash in manager's hands	0 0 4					
		735	8	8		
					2779	3 8
					£2860	9 10

To balance in favour of the society brought down	£2779 3 8
Deduct one year's subscriptions on 453½ shares. at £6 per share, and the £1 in advance	2722 0 0
Difference	£ 57 3 8"

which, divided among the number of investors' shares, or those which have *not* been advanced, will give the dividend apparently realised per share for the past year.

But the number of *unadvanced* shares is 453½ less 33, or 420½, and 57*l.* 3*s.* 8*d.* divided by 420½ equals 2*s.* 5*d.* nearly, which is the result of the past year's operations of this building society, *as far as the above debtor and creditor account is concerned*, and entitles the investers to receive 2*s.* 5*d.* per share at its *termination*, in addition to the £6 paid by each.

The *true value* of each share can only be ascertained by the method described in the preceding pages, in which would enter the various considerations deduced from the particular nature of the society.

No. 2.

"The ———————— Mutual Association.

Original entrance fee, 2*s.* 6*d.* Monthly subscriptions, 10*s.* Redemption, 4*s.* per share of £120 each.

In the *third* annual report of this society, the directors state, that 85½ shares have been advanced during the last year, which, added to those in the two previous years, make a total of 261½ shares, on account of which securities have been lodged with the society.

"Since the auditing of the accounts, 5½ shares, not included in that number, have been further advanced, which will make 267 out of 635 shares subscribed for; and the directors are under engagements to advance 20 shares out of the fourth year's capital.

"The *present entrance fee* upon new and additional shares is £6; but upon shares being taken to complete a purchase it is only 2*l.* 2*s.* 0*d.*, at which sum it was agreed they should continue until after the shareholders' meeting in January last.

"The minimum premium or discount upon purchased shares has been fixed by the directors at £55 per share for the fourth year."

Summary of the financial statements as appended to the report:—

"General Account, for the Third Year.

"*Dr.*

To cash, as per last account	£8329	17	1
Subscriptions, third year	3650	16	6
*Interest, entrance fees, fines rules, transfers, &c.	590	0	7
Forfeit on purchased shares	60	0	0
*Arrears of subscriptions, fines, interest, &c.	100	16	0
Cash advanced as a loan	4085	0	0
Premiums as per last report	10626	19	5
Premium, third year	4938	17	6
	£32382	7	1

"*Cr.*

Expenses, first and second year	204	11	3
Interest on loans (2 years)	65	4	0
176 shares advanced, first and second year...	21120	0	0
85½ ditto, third year	10260	0	0
Management *Expenses*, third year	77	18	2
Interest on loans	183	4	4
Ground rent and insurance	11	1	2
Arrears, as above	100	16	0
Cash with bankers	359	12	2
	£32,382	7	1

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*[The practice of throwing several items together to account for so large a sum as £500, as in the third line of the above debtor account, is unfair, and may justly become the subject of animadversion among the shareholders.]

Profit Account.

"*Dr.*

Expenses for three years	282	9	5
Subscriptions, ditto	11361	9	0
Interest, ground rent, and insurance	259	9	6
Arrears	100	16	0
Loans	4085	0	0
Cash with bankers	359	12	2
Profit and bonus	15933	11	0
	£32,382	7	1

"*Cr.*

By account as above	£32,382	7	1
	£32,382	7	1

"*Shewing:*

Profit and bonus brought down, divided between 635 shares of £120 each	25	2	0
Subscriptions paid	18	0	0
Estimated portion of each share cancelled in three years	£43	2	0

The above account contains various errors, and the items are injudiciously mingled together. The profit 15,933*l.* 11*s.* does not in reality exist, as it is in great measure an imaginary advantage, supposed to have arisen from the discount given by borrowers on their shares, and, as such, ought not to have appeared in the balance sheet.

We will not examine what would be found to be the actual value of the shares, supposing a proper calculation made, but simply remark, that the above furnishes ample evidence of the deficiency, arising from the expenses, which must exist towards the epoch of a society's termination, if they so considerably diminish, even in three years, the interest realised on the investor's subscription; for the receipts from interest and fees, including the forfeited shares, altogether only amount to 650*l.* 0*s.* 7*d.*, of which 541*l.* 18*s.* 11*d.* has been absorbed by the expenses, leaving 108*l.* 1*s.* 8*d.* to be divided between 368 unadvanced shares, which is about 5*s.* 10*d.* per share, and is all the interest obtained for three years' subscriptions on each.

Such a result speaks for itself.

No. 3.

The ———————— Society.

Original entrance fee, 2*s.* 6*d.* *present one*, £1 per share. Shares, £120. Monthly subscriptions. 10*s.* Redemption fee, 4*s.* per share.

In the first annual report the directors allude to the *success* which has attended the progress of the society:—

"There are 113 members, holding 211½ shares, and the total profits, after deducting expenses, amount to 1069*l.* 17*s.* 9*d.*, being 5*l.* 1*s.* 2*d.* per share; which added to the subscription of 6*l.* paid on each share, shows a profit of 11*l.* 1*s.* 2*d.* to be the progress made towards the realisation of each share."

The following are abstracts of the financial statements :—

"*Dr.* "Cash Account.

Subscriptions on shares				£1258 10 0
Entrance and redemption fees, fines, rules, &c.				60 13 9
				£1319 3 9

"*Cr.*

Expenses				66 14 9
Advances on 19½ shares...	£2340	0	0	
Less premiums thereon	1106	5	0	
				1233 15 0
Balance with bankers				18 14 0
				£1319 3 9

Profit Account.

"*Dr.*

To expenses				£66 14 9
Balance or profit of the first year				1069 17 9
				£1136 12 6

"*Cr.*

Premiums on 19½ shares				£1106 5 0
Subscriptions and fines in arrear				11 13 6
				1117 18 6
Balance in bankers' hands				18 14 0
				£1136 12 6

Profit brought down :

£1069 17*s.* 9*d.* divided by 211½ shares, gives				£5 1 2
Subscriptions paid				6 0 0
Actual value of each share				£11 1 2"

The above result is fictitious in consequence of the discount or premiums 1106*l.* 5*s.* 0 *d* given by the borrowers on the nominal value of their shares, being entered as actual profit or cash realised. Instead of any *interest* having been produced by the past year's business, we find that the expenses have even entrenched on the receipts from *subscriptions* :—

For the expenses paid amount to				£66 14 9
Less fees, fines, &c. to be received or in arrear				60 13 9
Leaving a deficiency of				£6 1 0

which divided among the 192 *unadvanced* shares, gives a deficiency of about 7½d. per share.

* Art. 103.—SCHEDULE C.

Form of Liabilities and Assets Account.

Dr.

1. Outstanding accounts unpaid: *viz.* ... ...£ _____ £
2. Loans and interest thereon due by the society: *viz.*.....£ ..... _____
3. †To *net* subscriptions actually received upon shares (now actually in existence) of depositing (or non-borrowing) members, from the of 18 , to the 18 ... ...
4. To interest due thereon up to this date and calculated at per cent. rate of interest, (being the rate obtained from the borrowers, or that promised to the depositors by the rules) ... ...
5. To reserve for future expenses during years... ... ... _____

Total ... ... £ _____

Cr.

1. By cash in hand: *viz.*, ...£ ..... _____
2. Value of property in possession, through default, if sold to produce assets ... ...
3. ARREARS due upon existing mortgages: *viz.*,
   Re-payment subscriptions ... ...£
   Fines and fees... ... ...£ _____
4. † By arrears of fines and fees due from non-borrowers ... ...
5. Present value of future re-payments on existing mortgages, calculated at per cent. rate of interest ... ... _____

Total ... ...£ _____

Balance ... ...£ _____

The above has been prepared by me, ———— Chairman or Secretary, this of 18 , at

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* [Schedules A and B relate to the general business of the Society, and may be had on application to the Author.]

† Note.—[The arrears of *subscriptions* due from non-borrowers must not be taken into account, as the society is only made debtor to them for the *net* Subscriptions received.]

Schedule F.

Return to be made for the purpose of a Valuation of the Amount due in respect to the Unadvanced Shares in force on the _____ 18

1.	2.	3.	4.	5.		6.	7.	8.	9.	10.	11.
				SUBSCRIPTIONS.							
Order & Term of Years.	Initials or Surnames of Members.	Date of issue of shares and first payment thereon.	No. of Shares.	Total amount of subscriptions on such shares to date, inserted as if regularly kept up. Arrears being inserted in Column 9.	Addition to present liability in respect to ultimate realization.	No. of Mnths' Subscriptions paid in advance from date.	Amount paid in advance of Future Subscriptions.	Total of Columns 5 & 7.	Arrears Due.	Term Expir'd	REMARKS.

CHAPTER VII.

ALPHABETICAL DIGEST

OF THE

EXISTING LAW RELATING TO BUILDING SOCIETIES.

It has been already explained in the Introductory Remarks that, while it is hoped that the Digest, contained in the following pages, will afford an abstract of the existing Case-Law and Acts of Parliament useful for Solicitors, Managers, and Directors of Building Societies, yet its main object is, to prepare the mind of the Reader for the general amendments in the Law, which our experience, since the publication of the first edition of our Treatise on Building Societies in 1847, leads us still to recommend. (See pages vii to xii.)

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ACCOUNTS.

1.—*Accounts to be rendered by the Society* :—

"Once in every year a general statement of the funds and effects shall be prepared, specifying in whose custody such funds or effects are placed.
"Also an account of the receipts and expenditure during the year.
"All to be attested by two auditors, and countersigned by the secretary.
"A copy to be given to any member, on demand.
"Rules may provide, that any member demanding such copy, shall pay a sum not exceeding sixpence."—(10 Geo. 4, c. 56, s. 33).

2.—*Accounts to be rendered by individuals* :—

Any person (whether a member or not) receiving money on behalf of the Society, or entrusted with any of its property, must render account thereof.

In default, the Society may petition the Court of Chancery, who may proceed in a summary way, and make an order, upon hearing all parties, which shall be final and conclusive.—(10 Geo. 4, c. 56, s. 14).*

This summary remedy does not take away the right of the Society to an action-at-law.—(*Sharp* v. *Warren*, 1818, 6 Price, 131.)

This case was decided upon the old Act, 33 Geo. 3, c. 54, s. 8; but sect. 14 of 10 Geo. 4, c. 56, was framed upon that clause, and the decision, therefore, holds good.

ACT.

3.—The Act relating to Building Societies, 6 & 7 Wm. 4, c. 32, (1836,) is a public Act, and extends to Great Britain, Ireland, and Berwick-upon-Tweed.—(s. 9.)

It consists, not merely of its own nine sections, but also of every clause in the 10 Geo. 4, c. 56, and the 4 & 5 Wm. 4, c. 40, which is applicable to Building Societies.—(s. 4.)

These Acts have since been repealed, but that repeal does not affect their bearing on Building Societies, as for the purposes of Building Societies their clauses are incorporated with those of the 6 & 7 Wm. 4, c. 32, which has not been repealed. —*Reg.* v. *Merionethshire* 1844, 6 Q. B. 343 and *Walker* v. *Giles* (per Wilde, C. J.) 1848, 6 C. B. 662, 18 L. J. 343 C. P.

The benefits of the Act extend to Societies established before the 1st June, 1836, provided their Rules are certified and deposited according to 10 Geo. 4, c. 56, and 4 and 5 Wm. 4, c. 40:—no such Society was required to alter its Rules.—(s. 7.)

ACTION. (See PROCEEDINGS.)

4.—An action, for arrears due on a Mortgage, and generally for causes arising out of the relation of Mortgagor and Mortgagee, between the Member and the Society, may be maintained—

* [The jurisdiction was vested by the Act in the Court of Exchequer; but it has been transferred to the Court of Chancery along with all the Equity jurisdiction of the Exchequer Court, by the Act 5 Vict., c. 5.]

notwithstanding a Rule for reference to Arbitration of disputes between a Member and the Society.

Morrison v. *Glover*, 1849, 4 Exch. 430; *Fleming* v. *Self*, 1854, 3 De Gex, M. & G., 997; Scratchley on Copyholds, App. 27; *Farmer* v. *Giles*, 1860, 5 H. & N., 753.

5.—An action, for breach of the covenant for repayment in the Mortgage Deed, may be maintained, notwithstanding the Directors have their remedy by collection of rents or by sale.

Reeves v. *White*, 1852, 17 Q.B. Rep. 995, 21 L. J. Q. B., 169; per Lord Campbell, C. J.

6.—If the Rules provide that no action shall be brought without the consent of a *Special Meeting*, the Meeting giving such consent need not be one called for that purpose alone, but may proceed to other business, if due notice has been given.

Cutbill v. *Kingdom*, 1847, 1 Exch., 494.

ALTERATIONS.

7.—Alterations of Rules may be made at a General Meeting of the Members, convened by written or printed notice, signed by the Secretary or President, or other principal Officer or Clerk, upon a requisition by seven or more Members. The requisition and notice must be publicly read at the two usual Meetings held next before the General Meeting. The General Meeting may appoint a Committee to make the alterations. No alteration is to be made without the concurrence of three-fourths of the Members present, or of the Committee.—(10 Geo. 4, c. 56, s. 9.)

8.—The seven Members signing the requisition can compel the Secretary to give notice of a Meeting for Alteration of Rules.

In *Reg.* v. *Bannatyne*, 1851, 20 L. J. Q. B., 210, Erle, J. refused a Mandamus, but his decision was overruled on a review of the case. See 17 Q.B., 524.

9.—All alterations must be certified by the Government Barrister, upon an affidavit from the Secretary of the Society that all the provisions of the Act and of its Rules have been complied with. If the Barrister refuse to certify, appeal may be made to the Quarter Sessions.—(10 Geo. 4, c. 56, s. 5.)

The following is the Form of Affidavit:—

"I,.....of.....,
"the Clerk (or Secretary, or one of the Officers) of .....
"Society, held at.....in the county of.....
"make oath and say, that in the making the alterations or amendments in the

"Rules of the said Society, the provisions of the Act under which the Rules of "the said Society are certified, have been duly complied with.
"Sworn this.....day of.....18....., before me,
"
"A Justice of the Peace, acting for....."

10.—No fee is due to the Barrister if the alterations are made within three years after enrolment, nor if they are Copies of Enrolled Rules of any other Society.—(4 & 5 Wm. 4, c. 40, s. 5.)

11.—Members under notice of withdrawal would probably not be bound by alterations subsequently made.

Armitage v. *Walker*, 1855, 2 Kay and Johnson, 211, per V. C. Wood.

ARBITRATION.

12.—Unless the Rules of the Society provide for a reference of disputes to the Justices of the Peace, the only remedy in case of differences between a Society and its Members (as Members), is by a reference to Arbitration.

The jurisdiction of the Superior and other Courts of Law is taken away by 10 Geo. 4, c. 56, ss. 27, 28, 29.

"It is contended on the part of the defendants, that this enactment" (9 Geo. 4, c. 92, s. 45, relating to Savings Banks, which is of similar import to the 10 Geo. 4, c. 56, ss. 27, 28, 29, which relate to Building Societies) "is imperative upon "the plaintiff, taking away the jurisdiction of the Courts of Common Law, and "leaving the party who complains no other mode of determining his claim "than that which is pointed out and provided by the Act. It is not denied, on "the part of the plaintiff, that the present case falls within the description of "those contained in the section: indeed, it would be impossible to argue that "the present is not a dispute between persons acting under the Institution and "an individual depositor; but it is contended by the plaintiff, that the jurisdiction "of the Courts of Common Law is not ousted by any word to be found in this "section; and that the utmost which the section contemplates is to create a "concurrent and not an exclusive jurisdiction in the arbitrators. But we are "of opinion, that both with reference to the words of the Statute and the "object which it had in view, the plaintiff is barred from maintaining the present "action in a court of law, and must pursue the remedy provided by the Statute. "It is, undoubtedly, true that the jurisdiction of the Superior Courts of West-"minster is not to be ousted, except by express words, or by necessary impli-"cation (*Cates* v. *Knight*, 1789, 3 T. R., 442); yet where the object and intent "of the Statute manifestly require it, words that appear to be permissive only, "shall be construed as obligatory, and shall have the effect of ousting the "courts of their jurisdiction. As in *Cates* v. *Knight*, where a clause enacted, "that it shall and may be lawful for a Justice of the Peace to hear and deter-"mine offences against the Act, that subject the offender to penalties not "amounting to £50, with a power to the Justices to mitigate the penalties, "whilst the same Act directed that all penalties which amount to £50 or more "shall be sued for in His Majesty's Courts at Westminster; it was held, that "by necessary implication the courts above were ousted of their jurisdiction in "in the case of penalties not amounting to £50. Now, in this case the Legis-"lature has enacted, that disputes of the description of the present shall be

"referred—words which in their natural force denote an obligation, not a "permission only; and unless these words are construed to be compulsory on "the plaintiff, they mean nothing. If they are not compulsory on the plaintiff, "neither can they be so upon any principle of fair construction upon the "defendant. And if recourse to arbitration is not intended, except both "parties choose to adopt it, then, indeed, the Act is made a dead letter, for "it would be competent for both parties to refer the dispute to arbitration, if "they both agreed upon it, without the intervention of the Statute. In order, "therefore, to give these words of the Statute any force or operation, the "word 'shall' must be construed as obligatory; that is, that the matter in "dispute shall of necessity be referred to arbitration, and not be determined in "any of the Courts of Westminster Hall. But, looking at the object and "intention of the Legislature, we think it clear that their remedy by action is "taken away, and that by arbitration substituted in its place."—*Judgment of* Lord Chief Justice TINDAL in *Crisp* v. *Bunbury* (1832, 8 Bingham, 394.)

"Upon a rule for a *mandamus* to the Judge of the County Court to proceed with "this action, which was brought by a Member of a Building Society, within "the provisions of the 6 & 7 Wm. 4, c. 32, against an Officer of the Society, it "was contended, that by section 4 of that Statute, incorporating the provisions "of the 10 Geo. 4, c. 56, ss. 27, 28, 29, and by the 25th Rule of the Society, "directing a reference of all disputes to Justices of the Peace, the right to "bring the action was taken away; and I am of opinion that this is so. By "those sections, provision is directed to be made by the Rules, specifying "whether disputes shall be referred to Justices or to arbitration; and the decision "upon such reference is made final. Those sections and this rule, providing "for a cheap, simple, and speedy decision, oust the jurisdiction of the ordinary "tribunals (*Crisp* v. *Bunbury* [see above], *Timms* v. *Williams*, 1842, 3 Q. B., "413.) In *Cutbill* v. *Kingdom*, 1847 (1 Exch., 494), the action was held "maintainable, because the rule there relating to reference did not comprise "the matter of that action; but by the exception the rule was recognized. "The 9 & 10 Vict., c. 95, s. 58, does not operate to take away the effect of "these statutes from County Courts, or revive a power of bringing actions "there, which had been taken away from all courts generally. The rule must, "therefore, be discharged."—ERLE, J., in ex parte *Payne* (5 Dowling & Lowndes, 679), 1849.

13.—Is it competent for a Friendly [or Building] Society to make a rule, providing that a Member requiring a reference to arbitration must deposit a sum of money to abide the result?

Sir W. BOVILL, when Solicitor-General, was of opinion that it is, and that there is no legal restriction as to the amount which might be required to be deposited. (See Report of Registrar of Friendly Societies, 1866, p. 30.) But the learned Judge of the Wolverhampton County Court, A. M. SKINNER, Esq., Q.C., in a case before him (unreported, but kindly communicated to us by himself), decided to act, notwithstanding such a rule, on the ground that it operated as a denial of justice to a poor member.

14.—*What are to be referred to Arbitration.*

All disputes, connected solely with the affairs of the Society, arising between it and any Member, or person claiming on account of a Member, as Member. [10 Geo. 4, c. 59, s. 27.]

15.—*What are not disputes referable to Arbitration.*

See ACTION, SOLICITOR.

The Executor (*Kelsall* v. *Tyler*, 1856, 11 Exch. 530, per Pollock, C.B.,) or

Administrator (*Knox* v. *Shepherd*, 1860, 2 L.T., N.S., 351 Q.B,) of a Member are not claimants, "on his account" within the meaning of the Act. See also *Smith* v. *Lloyd*, 1859, 26 Beav. 507.

16.—*Proceedings in Arbitration.*

The Rules are to specify the number of Arbitrators, and the mode of Ballot, by which those to act in each case of dispute are to be chosen.

They must be not less than four in number (at least three to act in every case of dispute), and should be elected at the first Meeting of the Society.

If elected at some subsequent Meeting, the election would still be valid:—for this part of the provision is directory, and not imperative, as it contains "mere matter of direction, and nothing more."—*Taunton, J.*, in *Pearse* v. *Morrice*, 1834 (2 A. & E., 96.)

"There is a known distinction between circumstances which are of the essence of a thing required to be done by an Act of Parliament and clauses merely directory. The precise time in many cases is not of the essence."—LORD MANSFIELD, in *Rex* v. *Loxdale* (1 Burrow, 447), 1758.

The 54 Geo. 3, c. 84, enacted that the Michaelmas Quarter Sessions shall be holden in the week next after the 11th of October. Held that this was directory, and that they might legally be holden at another time.—*The King* v. *Leicester* (7 B. C., 12.)

By a Local Act constituting a Dock Company, it was enacted, that the Minutes of the Proceedings of the Meetings of the Directors should be signed by the Chairman at each respective Meeting. Held, that signature at a subsequent Meeting after the minutes had been read and confirmed, was a sufficient compliance.—*Southampton Dock Company* v. *Richards* (1 Scott N. R., 219), 1840; *London and Brighton Railway Company* v. *Fairclough* (5 Scott N. R., 68), 1841; *West London Railway Company* v. *Bernard* (3 Q. B., 873), 1843; *Miles* v. *Bough* (3 Q. B., 845), 1843; Dwarris on Statutes, 2nd Ed., 1848, p. 606, *et seq.*; Thompson on Building Societies.

In case of death, or refusal or neglect to act, the Society or General Committee are to elect new arbitrators in the place of those ceasing to be so, at their next Meeting.

Arbitrators must not be interested in the funds of the Society.

If the Society do not, within forty days after an application by a Member for reference to arbitration, comply with such application, or if the Arbitrators neglect or refuse to make an award, the Trustees or other Officers of the Society, against whom complaint is made, may be summoned before two Justices, who may determine the matter at issue.—(10 Geo. 4, c. 56, s. 27.)

Notice of an appointment by Arbitrators, for the purpose of proceeding with a reference, must be properly served, and not merely addressed to the Member, by post, according to the last entry on the register.—*Hilton* v. *Hill*, 1863, 9 L. T., N. S., 383.

AWARD.

17.—The Award of Arbitrators must be in the following form:—[See Schedule, 10 Geo. 4, c. 56.]

"We, the major part of the Arbitrators, duly appointed by the.....
Society, established at..... .....in the county of.....
Do hereby Award and Order, That A. B. [specifying by name the party or the Officer of the Society] do, on the.....day of.....
pay to C. D. the sum of.....[or, we do hereby reinstate in, or expel, A. B. from the said Society, as the case may be.]
Dated this.....day of.....One thousand eight hundred and.....

E. F.
G. H."

18.—When made according to the true purport and meaning of the Rules, it is binding on all parties, final and without appeal, either to Courts of Law or Equity, and may be enforced by proceedings before Justices.—(10 Geo. 4, c. 56, s. 27.)

19.—A Court of Equity has no jurisdiction to alter the Award, unless there be error upon the face of it, or it be shown to have been corruptly made.

Armitage v. *Walker*, 1855, 2 Kay and J. 211.

20.—If the Arbitrators neglect their duty, as by refusing to hear evidence on both sides of the question, the Justices have jurisdiction, as that is tantamount to a refusal of the Award.

Reg. v. *Grant*, 1849, 14 Q.B. 43, 13 Jur. 1026 19, L. J. M. Cases, 59.

21.—The Arbitrators may decline to hear counsel.

In re Macqueen, 1861, 9 C. B. N. S. 793.

22.—The Arbitrators (in a Building Society) cannot award costs.

Armitage v. *Walker* (see above)
Kelsall v. *Tyler*, 1856, 11 Exch. 537.

BONUS. [See also REDEMPTION.]

23.—Bonus from a Member for receiving a Share in advance may be taken by the Society, at any rate of interest.

Even before the Usury Laws were repealed, Building Societies were specially exempted from their operation, by the 6 & 7 WM. 4, c. 32, s. 2.—*Carr* v. *Johnson*, Ct. of Exch., Nisi Prius, June, 1848; see also *Burbridge* v. *Cotton*, 1851, 5 De Gex and S. 17.

BORROWING MONEY.

24.—Borrowing Money on behalf of the Society.

"I am of opinion, that a Rule authorising the raising of money for the purposes of a Society would be repugnant to the fundamental principles of the Society,

and that it cannot be certified as a Rule in conformity to Law and with the provisions of the Statute."—LORD WESTBURY, when Attorney-General, 6 July, 1857.

CERTIFICATE.

25.—The course of proceeding necessary to be adopted to obtain the Enrolment of the Rules of an intended Society is as follows:—

Two copies of the Rules, written (or printed) on paper or parchment, signed by three Members and the Clerk or Secretary, must be sent (with the fee of one guinea) to the Barrister appointed to certify Rules of Savings Banks, for the purpose of ascertaining whether the Rules are calculated to carry into effect the intention of the parties framing them, and are in conformity with law, and with the provisions of the Statutes in force relating to such societies; and the Barrister is to advise (if required) with the Clerk or Secretary of the Society to be formed, and give a certificate on each of the said copies, that the same are in conformity to law and to the provisions of the Statutes in force relating to such societies. or point out in what part or parts the said Rules are repugnant thereto. The Barrister is to return one of the copies to the Society, and transmit the other to the Clerk of the Peace for the county in which the Society is formed; and the Rules may be legally acted upon from the time when the same are certified by the Barrister.—(4 & 5 Wm. 4, c. 40, s. 4.)

26.—The Certificate refers back to the formation of the Society; thus, a Mortgage taken by the Society before Certificate does not require a stamp.

Williams v. Hayward, 1855, 22 Beav., 220, 1 Jur. N. S., 1128, 25 L. J., Ch., 289.

27.—The Certificate is conclusive as to the validity of new or altered Rules, even though the Rule of the Society as to the manner of making new Rules has not in fact been complied with.

Dewhurst v. *Clarkson*, 1854, 3 Ell. and Bl., 194. As the Certifying Barrister, however, has no power to ascertain whether the affidavit on which he granted the Certificate is true or not, this decision gives some opening to fraud, and the doctrine would probably be departed from if any case of obvious error were to arise. Erle, J. dissented from the decision of the Court.

COMMITTEE.

28.—The Rules must specify the number, powers, and duties of the Committee of Management, who must be Members.—(10 Geo. 4, c. 56, ss. 10, 12.)

COPYHOLDS.

29.—By the words "freehold or leasehold property," and "dwelling-houses or other real estate," inserted in the introductory part of the Building Societies' Act, it follows that copyhold property, which is comprehended in the term "real estate," may be acquired and

enfranchised through the instrumentality of Benefit Building Societies. See Art. 69, OBJECTS. We recommend our readers to examine the plan which we have devised for the Enfranchisement and Improvement of Copyhold and Church Leasehold Property, by the formation of Copyhold Enfranchisement Societies, registered under the Building Societies' Act.—(See *Scratchley on Copyholds.*)

COURT.

30.—The County Court has no jurisdiction where the Rules provide for a reference to two Justices of the Peace.

Exparte *Payne*, 1849, 5 Dowling & Lowndes, 679, 18 L. J. Q. B., 197.

31.—The Courts have no jurisdiction under the Act in an Enrolled Society which has ceased to act upon its certified Rules.

Exparte *Norrish*, 1821, Jacob, 162; *Reg.* v. *Lord Godolphin*, 1838, 8 A. & E., 338.

DEATH.

32.—If the Trustees of the Society, upon the Death of any Member intestate, have paid or divided any sum of money to or amongst any person or persons who appear to them to be entitled to his effects, such payment is valid as against any person claiming as next of kin or legal representative of the Intestate: but the next of kin or representative has a remedy against the person or persons receiving the money.—(10 Geo. 4, c. 56, s. 23.)

They may pay any sum not exceeding £20 without Will or Letters of Administration.—(s. 24.)

DEFICIENCY.

33.—In a Terminating Society, if the Funds are insufficient to pay out the Investing Members, both Borrowers and Investors must continue their Subscriptions till the unadvanced Shares realise their full amount. Nevertheless, the Borrowers are entitled to have their Mortgage Deeds delivered up to them as soon as the period of termination, on which the Society was supposed to be based, has expired.

Sparrow v. *Farmer*, 1859, 26 Beav. 511, 28 L. J. Ch., 537; 5 Jur. N. S. 530; *Farmer* v. *Smith*, 1859 (4 H. & N., 196).

A Member of a Society whose Rules provided that, upon payment by a borrowing Member of a sum to be ascertained as therein set forth, his Shares should be wholly extinguished, had assigned his mortgage, and the assignee had paid the redemption price. The Society, nevertheless, demanded and received from the Member the contributions required for meeting the deficiency which arose at the period for terminating. It was held that he could not recover these payments against the assignee of his mortgage. *Priestley* v. *Hopwood*, 1864 10 L. T., N. S., 646 Q.B. As to this case, see the remarks of Mr. Barry, in his Treatise on the Law of Building Societies.

DEFINITIONS.

34.—The following Definitions of a Building Society are given by the Act of 1836:—

1.—(*Preamble*) A Society established, "principally among the industrious classes, for the purpose of raising, by small periodical subscriptions, a fund to assist the Members thereof in obtaining a small freehold or leasehold property."

2.—(*Sect.* 1) A Society, which may consist of "any number of persons, for the purpose of raising, by the monthly or other subscriptions of the several Members, Shares not exceeding the value of one hundred and fifty pounds for each Share, such subscriptions not to exceed in the whole twenty shillings *per* month for each Share, a stock or fund for the purpose of enabling each Member thereof to receive out of the funds of such Society the amount or value of his or her Share or Shares therein, to erect or purchase one or more dwelling house or dwelling houses, or other real or leasehold estate to be secured by way of mortgage to such Society, until the amount or value of his or her Shares shall have been been fully repaid to such Society with the interest thereon, and all fines or other payments incurred in respect thereof."

DISSOLUTION.

35.—By 10 Geo. 4, c. 56, s. 26, it is provided, that a Friendly Society cannot be dissolved without the consent of five-sixths in value of its members, and that any person concerned in a division or misappropriation of the funds, without such consent, is liable to penalties; but it is doubtful whether this section is one of those "applicable to Building Societies," and several have in consequence been wound up under the Companies' Act, 1862.

FINES.

36.—A General Meeting may inflict reasonable Fines, Penalties, and Forfeitures, upon Members offending against the Rules. The Rules are to direct how the fines are to be applied. (6 & 7 Wm. 4, c. 32, s. 1.)

37.—Non-fulfilment of the covenant in a Mortgage Deed for payment of Fines, is not a dispute referable to Arbitration; but Fines accruing on unadvanced Shares are subject to Arbitration.

Cutbill v. *Kingdom*, 1857, 1 Exch. 494, 17 L. J. Exch. 177. *Knox et al.* v. *Shepherd*, 1860, 2 L. T. N. S. 351, Q. B.

FORFEITURE.

38.—A rule forfeiting unadvanced Shares, in the event of non-payment of Subscriptions for a given period, is not unreasonable, nor contrary to law.

Per Williams, J., in *Card* v. *Carr*, 1856, 1 C. B. N. S. 197: 26 L. J. 113, C. P. In this case the two Directors in attendance on a subscription night inadvertently received money on a share which had been forfeited by non-payment, and the Board afterwards repudiated it, and returned the money. By the rules five Directors were a quorum. The Court held, that the forfeiture had not been waived.

FORMS.

39.—Forms of Conveyance, Mortgage, Transfer, Agreement, Bond, or other instrument, may be set forth in a Schedule to the Rules. (6 & 7 Wm. 4, c. 32, s. 3.)

FREEHOLD LAND SOCIETIES.

40.—Building Societies have no power to purchase land, except out of the Surplus Funds, where authorized by the Rules, and the Directors cannot contract Debts on behalf of the Society for the payment of the purchase-money.

Grimes v. *Harrison*, 1859, 26 Beav. 435, 33 L. T. 115, Ch. *Mullock* v. *Jenkins*, 1851, 14 Beav. 628, 21 L. J., 65 Ch.

41.—Purchase of land by Members on behalf of the Society, where the Rules do not authorize it, is an individual speculation of the persons purchasing, and they cannot sustain a claim for contribution to the purchase-money from the other Members.

Re *Kent Benefit Building Society*, 1861, 1 Drewry and Smale 417; 30 L. J., 785 Ch.; 4 L. T. N. S. 610; 7 Jur. N. S. 1045.

42.—A Building Society can recover Subscriptions due from its Members, even though it acts illegally as a Freehold Land Society.

Reg. v. *D'Eyncourt*, 1864, 4 B. & S. 820; 10 Jur. 513; 12 W. R. 408.

43.—Allottees of land should be careful to see that the title of the Society's Trustees to the land is complete. If it be defective, the original vendors may enforce contributions to the purchase-money from the several allottees.

Peto v. *Hammond*, 1861, (29 Beav. 91, 30 Beav. 495, 31 L. J., Ch. 354) was a case where land had been bought on behalf of a Building Society, acting as a Freehold Land Society, but the whole of the price not having been paid, the Vendors had a lien on the conveyance for the unpaid portion. Meanwhile, the Society proceeded to allot the land among its members. It was held that the Vendors, in a suit to recover the balance due, must join the whole of the allottees as defendants, and that the allottees were all liable to contribute to payment of it.

44.—Allottees should be careful into what covenants they enter; and Trustees should see that all necessary restrictions are duly provided for in the several mortgage deeds.

Eastwood v. *Levers*, 1863, 9 L. T. N. S. 615; 33 L. J., Ch. 355.

45.—Allottees of land, even though let into possession, have no estate in it until the purchase-money has been paid by the Society and the property conveyed to the Members.

Reg. v. *Inhabitants of Carlton*, 1849, 14 Q. B. N.S. 110; 13 L. T. 505.

FRIENDLY SOCIETIES.

46.—The provisions of the old Friendly Societies' Acts (10 Geo. 4, c. 56, and the 4th and 5th Wm. 4, c. 40) apply to Building Societies, so far as they can be made applicable. As regards Friendly Societies they have been repealed.

INTEREST.

47.—No interest or dividend, by way of profit on the Shares, can be received by any Member from the Society, until his Shares are realised, except upon withdrawal. (B. S. Act, sect. 1.)

INVESTMENT.

48.—The uses and purposes to which the Funds are to be applied, and the manner in which the Society is to give its consent to the laying out and disposing of the Surplus Funds, must be set forth in the Rules. (10 Geo. 4, c. 56, s. 13.)

49.—The Funds are not authorised to be invested in any Savings Bank, nor with the National Debt Commissioners. (B. S. Act, s. 6.)

50.—The Surplus Funds may be invested in purchase of real estate, if the Rules so provide.

Mullock v. *Jenkins*, 1851, 14 Beav. 628; 21 L. J. Ch. 65; *Grimes* v. *Harrison*, 1859, 26 Beav. 435; 28 L. J. Ch. 823; 5 Jur. N. S. 528.

JOINT MEMBERSHIP.

51.—"It is inconsistent with the object which the Legislature contemplated (which was to assist individuals), that persons

combining together and forming a Joint Stock Company, should ever be capable of being members of a Benefit Building Society."

Sir L. Shadwell, V.C., in *Dobinson* v. *Hawkes*, 1848, 16 Sim. 437; 12 Jur. 1037.

52.—Two or more persons may jointly become Members.

This has never been judicially decided, though *Walker* v. *Giles*, 1848, arose on a mortgage granted to two members as joint holders of certain shares. 6 C. B. 662; 18 L. J., C. B. 323.

JURISDICTION.

53.—In questions involving the relation of mortgagee and mortgagor between the Society and the Member, the Courts of Law and Equity have jurisdiction, notwithstanding a reference of disputes to Arbitration may have been provided for in the Rules. (*See* ACTION.)

4 & 5 Wm. 4, c. 40, s. 7; per Erle, J. in *R.* v. *Trafford*, 1854, 4 E. & B. 122; 24 L. J., M. C. 20; *Cutbill* v. *Kingdom*, 1847, 1 Ex. 494; *Fleming* v. *Self*, 1854, 3 De Gex. M. & G. 997, 24 L. J. Chan. 29.

See also ARBITRATION and COURT.

LUNACY.

54.—The Rules should contain a provision for the case of Members becoming lunatic, as there is nothing in the Acts of Parliament which meets it.

MINORS.

55.—With the consent of his parents, masters, or guardians, a Minor might become a Member of a Friendly Society, execute instruments, give acquittances, and possess the privileges and responsibilities of a Member of full age, by the 10 Geo. 4, c. 56, s. 32; but it is doubtful whether this section is one of those "applicable to Building Societies."

MORTGAGE [*See* REDEMPTION].

56.—Care should be taken that the Mortgage Deed is consistent with the Rules of the Society. See Art. 98, RULES.

Mosley v. *Baker*, 1848, 6 Hare 87.

57.—The Mortgage should be given to the Treasurer or Trustee for the use and benefit of the Society. (10 Geo. 4., c. 56, s. 21).

58.—After death or removal of any Treasurer or Trustee, the Mortgage vests in his successor without any conveyance or assignment whatever.

Walker v. *Giles*, 1848, 6 C.B. 662, 18 L. J. C. P. 323, 13 L. T. 209.

59.—The removed Trustee need not be asked to execute any assignment, and would be entitled to his costs of appearance against the Society if made a party to a suit for appointing another trustee to convey.

Third Burnt Tree Building Society, 1848, 16 Sim. 296; 12 L. T. 3, 12 Jur. 595.

60.—A Mortgage taken before the Rules have been certified and deposited is exempt from Stamp Duty, provided those formalities are complied with before action is brought; for the certificate refers back to the formation of the Society.

Williams v. *Hayward*, 1855, 22 Beav. 220.

61.—Advances may be made, and Securities taken, upon houses or property neither built nor purchased with the Mortgage money.

Cutbill v. *Kingdom*, 1847, 1 Exch. 494; *Morrison* v. *Glover*, 1849, 4 Exch. 430; 19 L.J., Exch. 20.

62.—Does a Mortgage create the relation of Landlord and Tenant between the Borrower and the Society?

"The object and general contents of the Deed are inconsistent with the intention of creating the relation of Landlord and Tenant as stated in the concluding part of the Deed." Wilde, C.J. in *Walker* v. *Giles*, 1848, 6 C. B. 662.

"In any view of the case it would be merely a tenancy at will."—Crompton, J., in *Turner* v. *Barnes*, 1862, 2 Best and Smith, 435: 9 Jur. N.S. 199. [*See* TENANCY.]

63.—The Mortgage Deed is often drawn in the form of a mere Conveyance upon trust for sale, and in *Scweitzer* v. *Mayhew*, 1862, 31 Beav. 37, an Order for Foreclosure was refused in consequence: but as the remedies by sale or collection of rents are better suited to the circumstances of Building Societies, this is not of great importance.

64.—An action may be maintained for breach of the covenant to repay, notwithstanding that the Directors have their remedy by Sale [or collection of rents]. See Art. 5, ACTION.

65.—In a Terminating Society, the obligation to pay subscriptions, if required, beyond the expected term subsists, though the security may have been vacated by Redemption.

Farmer v. *Smith*, 1859, 4 H. & N. 196, 28 L. J. 226, Ex. *Handley* v. *Farmer*, 1861, 29 Beav. 362.

66.—The form of Receipt to be given by the Trustees on satisfaction of a mortgage must be set forth in a Schedule to the Rules, and will vacate the Mortgage without a reconveyance. (6 & 7 Wm. 4, c. 32. s. 5.)

Stamers v. *Preston*, 1859, 9 Ir. C. L. 351. But the costs of a reconveyance by Deed, made to obtain registration at the Middlesex Registry Office, were allowed on taxation. In *re Page* (1863) 32. Beav. 485.

67.—Property was mortgaged to a Building Society, and afterwards to A. Mortgagor borrowed money from B to pay the Society, and then executed a Mortgage to B. The legal Estate vested in A.

Prosser v. *Rice*, 1859, 28 Beav. 68.

OBJECTS.

68.—The objects of the Society must be set forth in the Rules. (10 Geo. 4, c. 56, sec. 3.)

69.—One of the objects may be the making advances upon Copyhold Property.

In *Smith* v. *Baker*, 1737, 1 Atk. 385; and in *Doe dem. Clarke* v. *Ludlam*, 1831, 7 Bing. 275, the words "real estate" in a will were held to include Copyholds. See also *Coombes* v. *Gibson*, 1783, 1 Brown's Ch. Cas. 273; and Scriven on Copyholds, 236.

70.—May include the purchase of land by means of the surplus funds.

"There is nothing in the Act of Parliament to prevent the Society from purchasing from its members the fee simple of an Estate." Parke, B. in *Cutbill* v. *Kingdom*, 1847, 1 Exch. 494.

71.—May not include advances to Members upon personal security alone or mere deposit of their shares.

In *Reg.* v. *Shortridge*, 1844, 1 Dowl. & L. 855, this was determined not to be an object within the Friendly Societies' Acts, and there is nothing in the Building Societies' Act to enable it.

OFFICERS.

72.—The Officers are bound by the Rules, and (in the absence of a special contract for personal responsibility on the part of the Directors) can look only to the funds of the Society for payment. (10 Geo. 4, c. 56, s.8.)

Alexander v. *Worman*, 1860, 6 H. & N. 100, 30 L. J. Ex. 198.

B. Martin (delivering judgment of L.C.B. Pollock, B. Channell, and himself.) "We think it a mistake to suppose that in Societies of this kind, the Surveyor, or Secretary, or other Officers do work and labour upon the same terms as professional men of their class ordinarily do. They generally have a much greater interest in them than the Directors, and in the great majority of cases are the individuals who get them up, and at whose request the Directors consent to accept the office and take upon themselves the liabilities and duties of their situation: and it is to me very clear that such Officers discharge duties and perform services with the understanding on all hands that they are to be remunerated out of the funds, and that if the funds fail, the Officers must remain unpaid."

73.—Should be appointed under the titles used by the Act—not "stewards" but "trustees," &c.

Re the Heanor Friendly Society, 1838, 1 Beav. 509.

74.—Change of Officers must be conducted strictly according to the Rules.

Roberts v. *Price*, 1847, 4 C. B. 231, was a case where, when the Rules provided that Officers should be removed by a Committee of 11, and notice of meeting was only given to 10, though the other had said that he could not attend, the proceedings were held to be void.

75.—In case of the Bankruptcy of an Officer of a Building Society, having monies in his possession by virtue of his office, the Society had a prior claim to be paid in full out of his estate by 4 & 5 Wm. 4, c. 40, s. 12 :—but this is repealed in the B.L.C. Act, 1849, ss. 1, 167.

Exparte *Bailey*, 1854, 5 De Gex, M. & G. 380.

If in partnership with a third party, the priority was only against his separate estate, and not against the joint estate.

Exparte *Appach*, 1840, 1 Mont, D. & D. 83.

If the Treasurer had invested the funds of the Society on illegal and insufficient security, the Society was not deprived of its priority by reason of not having taken steps to set aside the transaction, or to realize the security before the Bankruptcy.

Exparte *Burge*, 1841, 1 Mont. D. & D. 540.

If a Clerk of the Society had received money without authority, and on its being claimed from him as a debt, had given security, the Society lost its priority.

Exparte *Buckland*, 1818, 1 Buck. 214.

If the Society had deposited money with its Treasurer, and received a promissory note or bond from him, payable with interest on demand, the Society had no priority.

Exparte *Stamford Friendly Society*, 1808, 15 Ves. 280; Exparte *Ashley*, and Exparte *Corser*, 1801, 6 Ves. 441; *The Amicable Society of Lancaster*, 1801, 6 Ves. 98; Exparte *Ross*, 1802, 6 Ves. 802.

76.—The Officers are not personally liable to make good deficiencies in the Funds, unless by registered writing they take such liability

upon themselves, when they may limit it. They are personally liable for all money they receive and for deficiency caused by their own misconduct or breach of trust. (10 Geo. 4, c. 56, s. 22.)

PLACE OF MEETING.

77.—The Place of Meeting must be set forth in the Rules. If it be altered, notice in writing, signed by the Secretary and three Members, must be given to the Clerk of the Peace for the county within seven days before or after the removal. The Place of Meeting cannot be removed into another county. (10 Geo. 4, c. 56, s. 10.)

PROCEEDINGS.

78.—In criminal proceedings, property of the Society may be described as property of the Treasurer or Trustee. (10 Geo. 4, c. 56, s. 21.)

79.—If the owner of the house, from which a box belonging to the Society is stolen, is one of the persons entitled to have a key of that box, though not actually having such key, the property may be laid in him.

R. v. *Wymer*, 1830, 4 Carrington and Payne, 391.

80.—If the Person stealing be a Trustee, the property may be laid in the Treasurer, and *vice versâ*.

Reg. v. *Cain*, 1841, Carrington and Marshman, 309.

81.—In a civil action it is sufficient to declare that the parties are Trustees for the time being, and plead as such.

Morrison v. *Glover*, 1849, 4 Exch. 430, 19 L.J., 20 Ex.

82.—To a Bill in equity demanding a dissolution of a Society, even if all the Members be not made parties, at least each class must be represented: thus, a bill was held to be defective for want of parties when the Members not under notice of withdrawal were not included in it.

Harmer v. *Gooding*, 1849, 3 De Gex & Smale 407, 13 Jur. 400.

PROMISSORY NOTE.

83.—Promissory Notes can only be given on the personal responsibility of the Members signing them. *See* TRUSTEES.

84.—A Secretary who signs a Promissory Note as Secretary, in the place where signatures are usually put, and not opposite, as a mere countersignature, may be made personally liable.

P. Bramwell, B, in Bottomley v. *Fisher*, 1862, 1 H. & C. 211, 31 L. J., 417, Ex., 6 L. T. N. S. 688.

85.—The Trustees signing a Promissory Note, may set off against a claim under it any sums due to the Society by the lenders.

Exparte *Clennell*, 1861, 4 L. T. N. S. 60, Bankr.

PROPERTY.

[*See* PROCEEDINGS.]

REDEMPTION [*See* MORTGAGE].

86.—If the Society lend to non-Members (as to a Joint Stock Company), the borrowers are entitled to redeem upon terms of an account, charging the Loan with interest, and crediting the payments made.

Dobinson v. *Hawks*, 1848, 16 Sim. 407, 12 Jur. 1037, 12 L. T. 238.

87.—In a terminating Society, a Member proposing to redeem must pay up the equivalent of all future payments till each unadvanced Shareholder has realized his share.

Mosley v. *Baker*, 1848, 6 Hare 87; on appeal, 1849, 1 Hall & Twells, 301. 3 De Gex M. & G. 1032. *Seagrave* v. *Pope*, 1853, 1 De Gex M. & G. 783

88.—In *Fleming* v. *Self*, 1854, 3 De Gex M. & G. 997, 1 Jur. N. S. 25; and in *Smith* v. *Pilkington*, 1859, 1 De Gex F. & J. 120; 29 L. J. Ch. 227; a borrower redeeming was held entitled to be credited with the amount of Bonus payable at the time to withdrawing Members. "His Honour (Sir W. P. Wood) stated various calculations to

show that the mode adopted of finding profits would lead to total insolvency, and read passages from SCRATCHLEY on BUILDING SOCIETIES, showing that the only way of ascertaining profits was by an annual account of debts and liabilities, receipts and payments; and then said he arrived at last at the conclusion that the Society would not be bound by the resolution of the Directors that eleven years should be the time at which the Society was to terminate."—23 L. T. 63, 1 Kay 519. In forgetfulness of this decision, the Trustees of a Building Society declared a Bonus on the unadvanced Shares only; but a borrowing Member was held entitled to such Bonus, notwithstanding that it had been erroneously calculated.

Archer v. *Harrison*, 1857, 7 De Gex M. & G. 404.

REGISTER OF MEMBERS.

89.—The Register of Members should be carefully kept up.

Dobinson v. *Hawks*, 1848, 16 Sim 407, 12 Jur. 1037. "To support the Defendant's view of the case, it must be made to appear that the Plaintiffs were members of the Building Society. The primary evidence, the evidence which the Legislature intended to exist of that fact, is not forthcoming. By the Rules of the Benefit Society, it is directed that the name of each member shall be inserted in a book, and that book would, of necessity, be either in the actual possession of the Defendants or under their control. My opinion is that the nonproduction of it, under the circumstances that appear in this case, must be taken to be conclusive evidence that the Plaintiffs were not members of the Building Society." V. C. Sir L. Shadwell.

REGISTRATION [*See* CERTIFICATE].

RULES.

90.—The Rules must be entered in a book to be kept by an Officer of the Society appointed for the purpose; the book must be open at all seasonable times for the inspection of the Members. A fair transcript of the Rules must be deposited with the Clerk of the Peace. When certified, they are binding on all Members and on every one connected with the Society, but not on strangers. (6 & 7 Wm. 4, c. 32, s. 1; 10 Geo. 4, c. 56, s. 8.)

Bottomley v. *Fisher*, 1862, 1 H. & C. 211. In *Stamers* v. *Preston*, 1859, 9 Ir. Com. Law R. 351, it was held that the transcript should be deposited with the Registrar, under 9 & 10 Vict., c. 27; but the decision was bad, for that Act does not apply to Building Societies. See Art. 3, ACT.

91.—The Rules must be proper and wholesome, agreed upon by the majority of the Members, and not repugnant to the Building Societies' Act or the general Laws of the Realm. (6 & 7 Wm. 4, c. 32. s. 1.)

92.—The entry of the Rules in the Book, or the transcript deposited with the Clerk of the Peace, or an examined and proved copy of such transcript, are evidence of the Rules in all cases. (10 Geo. 4, c. 56, s. 8.)

But the whole of the copy must be examined and proved, and not a particular Rule only.

Reg. v. *Boynes*, 1843, 1 Car. & Kir. 65.

93.—The printed book, bearing the Certifying Barrister's Signature, is sufficient, without proving the Enrolment at the Sessions.

Walker v. *Giles*, 1848, 18 L. J. C. P. 323, 6 C. B. 662.

94.—A Rule, forfeiting Shares after 6 months' neglect to pay, is not unreasonable.

Card v. *Carr*, 1856, 1 C. B. N. S. 197, 26 L. J. C. P. 113.

95.—Nor a Rule inflicting a fine of one shilling in the pound per month on borrowers in arrear of mortgage repayments.

Parker v. *Butcher*, in Chancery, 1866 (not yet reported).

96.—The Rules should set forth the method of investment of the surplus Funds. [*See* INVESTMENT.]

97.—A Rule for Arbitration does not oust the jurisdiction of the Courts of Chancery in the case of a Member who has given notice of withdrawal, and files a Bill to recover the amount due on his share. (*See* ARBITRATION.)

Smith v. *Lloyd*, 1859, 26. Beav. 507.

98.—Care should be taken that the Rules and the Mortgage Deeds are consistent.

"If the construction of the Mortgage Deed is free from ambiguity, its effects cannot be controlled by any ambiguous expressions in the Rules." Wigram, V.C., in *Mosley* v. *Baker*, 1848, 6 Hare 87, confirmed by the Lord Chancellor, 1849, 1 Hall & Twells 301, 3 De Gex M. & G. 1032.

99.—A Rule providing how "summonses, circulars, and notices" should be sent relates only to the ordinary business of the Society, and not to proceedings in arbitration.

Hilton v. *Hill*, 1863, 9 L. T. N. S. 383.

SECRETARY.

100.—The Secretary should be called upon to execute a bond. (10 Geo. 4, c. 56, s. 11.)

101.—He should take care how he signs promissory notes on behalf of the Society.

Bottomley v. *Fisher*, 1862, 1 H. & C. 211, was a case where the Secretary was held personally liable on a promissory note signed (not countersigned) by him as Secretary. See Art. 84.

102.—Orders for necessary repairs given by the Secretary may bind the Society, though not sanctioned by the Trustees (or Committee, as the case may be,) nor entered on the Minutes.

Allard v. *Bourne*, 1863, 15 C. B. N. S. 468.

SHARES. [*See* JOINT MEMBERSHIP.]

103.—The Shares must not exceed £150 in amount, and the subscription must not exceed in the whole 20*s*. per month for each share. (6 & 7 Wm. 4, c. 32, s. 1.)

104.—A Member may hold any number of Shares.

Morrison v. *Glover*, 1849, 4 Exch. 430, 19 L. J. Ex. 20. This point was raised, but no decision given, in *Cutbill* v. *Kingdom*, 1847, 1 Exch. 497; 17 L. J. Ex. 177.

SOCIETIES

Established before June, 1836. [*See* ACT.]

SOLICITOR.

105.—A Rule of the Society ordering reference to Arbitration is not a bar to an action at law by the Solicitor for his costs.

Kill v. *Hollister*, 1746, 1 Wils. 129; *Thompson* v. *Charnock*, 1799, 8 T. R. 139.

106.—Mere negligence on the part of the Solicitor, except when his labour has been wholly useless, is no defence to an action for his costs.

Templar v. *McLachlan*, 1806, 2 Bosanquet and Puller's New R. 136.

107.—That through his negligence no benefit has been derived from his work and labour, and that he has shown a want of fair professional skill in the transaction, is a good defence.

Huntley v. *Bulwer*, 1839, 6 Bing. N. C. 111.

108.—A Solicitor cannot recover items incurred for useless work.

"No principle of law is more clearly established than this, that a party cannot enforce a charge for doing business which is useless to his employer."—C. J. Tindal in *Shaw* v. *Arden*, 1832, 9 Bing. 287.

109.—The Solicitor is liable to an action for damage sustained in consequence of his negligence.

Russell v. *Palmer*, 1767, 2 Wils. 325; but see *Pitt* v. *Yalden*, 1767, 4 Burr. 2060.

110.—He is not answerable for error in judgment upon new, difficult, or doubtful points.

Godefroy v. *Dalton*, 6 Bing. 460, 1830; *Elkington* v. *Holland*, 1842, 9 Meeson and Welsby, 659; 11 L. J. 274 Exch.

111.—He must fully examine the title to the property offered on mortgage to the Society, and not rely on a mere extract.

Wilson v. *Tucker*, 1822, 3 Starkie 154.

112.—He is bound not to draw wrong conclusions from the deeds submitted to him.

Ireson v. *Pearman*, 1825, 3 B. & C. 799.

113.—Should the Society sustain any loss through the inaptitude or carelessness of the Solicitor, he is bound to make good the deficiency.

A case was tried at the Liverpool Assizes in 1842, in which the Trustees of a Benefit Building Society recovered from the defendants, who were the Solicitors employed in preparing the mortgage deed to the Society, the sum of £1350 lent to a shareholder. The defendants had given a certificate to the Society of their approval of the title of the borrower to the property intended to be mortgaged, but they neglected to secure the assignment of an outstanding term. Subsequently the borrower effected a second mortgage with different parties, who got the outstanding term assigned to them, and so secured a priority over the first mortgagees. The Counsel for the Building Society stated, in his address to the jury, referring to the profession of a Solicitor, that "no profession was of more importance to society—none exercised a wider influence. Every man's property was at their mercy, and on their skill and integrity everyone relied." —See "*The Times*" newspaper, 12th April, 1842.

STAMP DUTY.

114.—No Rules or copy of Rules, nor any transfer of shares, is liable to Stamp Duty. (B. S. Act, 1836, s. 8.)

115.—No power, warrant, or letter of attorney, &c., nor any bond or other security given to or on account of the Society, or by the Treasurer, Trustee, or any officer thereof, nor any draft or order, nor any form of assurance, nor any appointment of any agent, nor any certificate or other instrument for the revocation of any such appointment, nor any other instrument or document whatever, required or authorised to be given, issued, signed, made, or produced by virtue of the Act, is liable to Stamp Duty. (10 Geo. 4, c. 56, s. 37.)

116.—Mortgage securities given to a Building Society (whether by Members or strangers) are not liable to Stamp Duty.

Walker v. *Giles*, 1848, 6 C. B. 662; 18 L. J. C. P. 323; *Barnard* v. *Pilsworth*, 1849, 6 C. B., 698 *n.*; *Thorn* v. *Croft*, 1866, 36 L. J., Ch. 68.

117.—Stamp Duty is not chargeable upon securities, even when taken before the Rules are certified.

Williams v. *Hayward*, 1855, 22 Beav. 220; 25 L. J. Ch. 289. *Bradburne* v. *Whitbread*, 1843, 6 Sc. N. C. 283.

SURPLUS FUNDS.

118.—Such funds as the exigencies of the Society do not call for the immediate application or expenditure of, may be invested either on real or heritable securities or heritable property, or in the public stocks, funds, or Government securities, or in any of the Chartered Banks of Scotland, or in the Commercial Bank of Scotland, but not otherwise. (10 Geo. 4, c. 56, s. 13.)

119.—A Society may lend its Surplus Funds on real security to persons not Members, and may lend Surplus Funds to Members on security of property already in their possession.

Cutbill v. *Kingdom*, 1847, 1 Ex. 494; 17 L. J. Ex. 177. *Morrison* v. *Glover*, 1859, 4 Exch. 430; 19 L. J. 20 Ex.

SURVEYOR.

120.—The Surveyor is bound by the Rules, and has no remedy against individual Directors, if the Rules provide that he shall look to the Funds only for payment.

Alexander v. *Worman*, 1860, 6 H. & N. 100, 30 L. J. 198 Ex., 3 L. T. N S. 477.

121.—If the report of the Surveyor be grossly incorrect, and the Society sustains loss, he is not entitled to recover anything for the work and labour done, and is liable to an action for damages.

Moneypenny v. *Hartland*, 1824, 1 Car. & P. 352.

TENANCY.

122.—There is some doubt as to the effect of a Tenancy clause in a mortgage deed.

In *Walker* v. *Giles*, 1848, 6 C. B. 662, (per Wilde, C. J.) it was held that, "The object and general contents of a mortgage deed are inconsistent with the intention of creating the relation of Landlord and Tenant." But that decision has called forth some animadversion; and in more recent cases (*Pinhorn* v. *Souster*, 1853, 8 Exch. 763; *Brown* v. *Metropolitan Counties Assurance*. 1859, 4 H. & N. 428, 1 El. & El. 832) a tenancy has been held to have been created.

"The tenancy clause in a mortgage deed creates a rent, with all its incident remedies." *Keech* v. *Hall*, 19 Geo. 3, 1 Smith L. C. 5th Ed. 505.; *Jolly* v. *Arbuthnot*, 1859, (*re* Col. Waugh) 4 De Gex & Jones 224.

It does not create such a tenancy as would give the County Courts jurisdiction under the 122nd section of the County Courts' Act, 9 & 10 Vict., c. 95. *Jones* v. *Owen*, 1848, 18 L. J. Q. B. 8. But in *Third British Building Society* v. *Barrett*, 1849, 14 L. T. 259, Mr. Serjeant Jones, Judge of the Islington County Court, gave possession to the Trustees of a Building Society under the tenancy clause.

"The utmost effect which can be given to the clause is to create a tenancy at will."—Blackburn, J., in *Turner* v. *Barnes*, 1862, 2 Best & Smith 435; *Doe d. Bastow* v. *Cox*, 1847, 11 Q. B. 122, 17 L. J. Q. B. 3.

An action of debt, for use and occupation, would lie. *Standen* v. *Christmas*, 1847, 10 Q. B. 135; *Barnard* v. *Pilsworth*, 1849, 6 C. B. 698*a*.

TRANSFER OF SHARES.

123.—A Building Society may prescribe a form of Transfer in its Rules. (6 & 7 Wm. 4, c. 32, s. 3).

124.—Transfers are exempt from Stamp Duty. (6 & 7 Wm. 4, c. 32, s. 8.)

TREASURER.

125.—The Rules should provide that the Treasurer shall give security. (10 Geo. 4, c. 56, s. 11.)

126.—He may be called upon at any time to render accounts and to pay over at the next usual Meeting of the Society or Committee the balance of funds in his hands. (s. 14.)

127.—The Property of the Society is vested in him or the Trustees. He may bring or defend actions and suits, when authorized by the Society. (s. 21.)

128.—He is not liable to make good any deficiency, unless he has agreed in writing to be so, and then he may limit the extent of his liability. (s. 22.)

129.—Priority of claim on his estate in case of death or bankruptcy was given to Building Societies, by 4 & 5 Wm. 4, c. 40, s. 12, but see OFFICERS.

130.—He is not liable in case of Robbery.

Walker v. *British Guarantee Assurance*, 1852, 18 Q. B. 277.

TRUSTEES.

131.—As to Trustees, see 10 Geo. 4, c. 56, s. 11.

132.—All property and rights or claims of the Society are vested in the Treasurer or Trustees for the time being. (s. 21.)

133.—If a person holding property of a Society as a Trustee (not being one of the Trustees of the Society) is out of jurisdiction, a lunatic, not to be found, or refuses to convey, the Court of Chancery may appoint a person to convey in his stead, (s. 15.) The property of the Society in the hands of other persons does not vest in the Trustees by their mere appointment.

Dewhurst v. *Clarkson*, 1854. 3 Ell. & Bl. 194.

134.—The property of the Society vests in the duly appointed successor of a Trustee without conveyance.

Walker v. *Giles*, 1848, 6 C. B. 662, 18 L. J. C. P. 323, 13 D. T. 209.

135.—Even though the original security did not express the trust.

Cartridge v. *Griffiths*, 1817, 1 B. & Ald. 57.

136.—"In my opinion, if the money is paid to the Trustees, it must be to the whole of them. I am not aware of the difference in law between a Trustee and an acting Trustee. In order to avoid the liability, the money should be paid to the Treasurer, who should give security."—*From a statement of the Certifying Barrister, Mr.* TIDD PRATT.

137.—"I am of opinion, that no personal responsibility can attach to any Trustee or Director of a Benefit Building Society, except so far as relates to money they actually receive, and in that case there can be no such responsibility if the money is paid over or applied according to the Rules. See 10 Geo. 4, c. 56, s. 22. They cannot, therefore, be held personally responsible in the event of the Society not proving successful, or in the event of the mortgage property proving a loss to the Society, and any of the subscribed funds being lost thereby."—*From a statement of the Certifying Barrister, Mr.* TIDD PRATT.

138.—Any Member signing a promissory note may be made personally liable, even though he write after his name some word, as "Trustee."—A plea that the note was given on behalf of the Society is bad.

Price v. *Taylor*, 1860, 2 L. T. N. S. 221, 5 H. & N. 540.

139.—The Trustees, acting only ministerially, are not liable, although the Directors, at whose request they act, may be guilty of a breach of trust.

Grimes v. *Harrison*, 1859, 26 Beav. 435, 28 L. J. Ch. 823, 5 Jur. N. S. 528.

140.—The Trustees cannot maintain an action until the Rules under which they are appointed are certified.

Battey v. *Townrow*, 1814, 4 Campbell 5.

141.—Upon the legal establishment of a Society, they may call for a transfer to them of the Funds previously belonging to the Society.

Yeates v. *Roberts*, 1855, 3 Drewry 171; confirmed on appeal, 7 De Gex. M. & G. 227; *Hodges* v. *Wale*, 1853, 2 W. R. 65.

VOTING FOR COUNTIES.

142.—The right to vote is not conferred upon a Borrower from a Building Society, unless the annual value of the land mortgaged exceeds the annual payments to the Society by 40 shillings.

Beamish app. *Stoke* resp., 1851, 11 C. B. 29, 21 L. J. C. P. 9; *Copland* app. *Bartlett* resp., 1848, 6 C. B. 18, 13 Jur. 127.

WINDING-UP.

143.—A Building Society is within the Winding-up clauses of the Companies' Act, 1862.

Several Building Societies are in course of winding-up by the Court of Chancery. The first case of the kind was Re *St. George's Benefit Building Society*, 1857, 3 Jur. N. S. 682, 29 L. T. 310, 27 L. J. Ch. 96, 4 Drewry 154, under the old Winding-up Acts.

144.—A Building Society cannot, for the purpose of being wound-up in the County Court, be registered as an Industrial and Provident Society.

In Re *Midland Counties' Society*, 1864, 10 Jur. N. S. 505, the M. R. rejected a petition to wind-up a Society in his own Court, on the ground that this course might be taken: but his decision was overruled by the Lords Justices, 1865, 11 Jur. N. S. 229.

WITHDRAWAL.

145.—Members may withdraw. (6 & 7 Wm. 4, c. 32, s. 1.)

146.—A Member, who has given notice to withdraw, may file a Bill in Chancery to ascertain and recover the amount due to him.

Smith v. *Lloyd*, 1859, 26 Beav. 507.

147.—If the amount due has been settled by arbitration, the Court will not enquire whether the amount awarded is correct according to the Rules.

Armitage v. *Walker*, 1855, 2 Kay and J. 224.

148.—A question, as to priority of payment among the Members withdrawing, should be determined by arbitration.

Wright v. *Deeley*, 1866, 4 H. & C. 209.

149.—In winding-up, a Member, who has given due notice of withdrawal, is not a contributory; but he is a creditor for the amount due to him, including the compound interest (if any) allowed by the Rules.

Re *Doncaster Building Society*, 1866, 14 L. T. N. S. 13 (before Wood, V.C.)

PART II.

LOCAL ENTERPRISE ENCOURAGEMENT COMPANIES.

Ce qui manque aux hommes industrieux, dans les rangs des classes laborieuses, c'est l'instruction professionnelle et le crédit. *La meilleure solution du problême des caisses d'épargne, c'est, à n'en pas douter, l'établissement d'institutions locales de crédit.* AUG. VISSCHERS.—Etude sur les Caisses d'Epargne, *Bruxelles*, 1861, p. 60.

CHAPTER I.

ART. 1.—In the year 1836, when the Building Societies' Act became Law, legislation for *Joint Stock Companies* was unknown. They were still subjected to the doctrines of the old unwritten Law relating to Partnerships, and unless they had obtained incorporation by the expensive and exceptional process of a Charter or an Act of Parliament, each member was considered an individual partner, responsible, to his last shilling and his last acre, for the whole of the debts of the partnership and for every act committed on its behalf by any other member. It is only since 1856 that the English Legislature (imitating tardily the law-makers of the Continent and America) has recognized the possibility of a *Limitation of individual liability* to losses on the part of a person entitled to receive any portion of the profits of a venture, and the year 1862 saw the passing of a comprehensive measure for the regulation of public Companies, which has rendered the incorporation of subscribers to any public purpose, with limited liability, so simple and easy a matter, that every day fresh Companies are started and new applications of the power of association devised. The system of Limited Liability, in a modified form, has, moreover, been made applicable to private partnerships by the Act of 1864, which enables a lender to share in the profits of a concern without being liable to lose more than the money invested.

2.—The Building Societies' Act, under which the societies, we have had under consideration in Part I, are required to be registered, has been already shown to have for its object the enabling the industrious classes to fructify their small savings by aggregation, with the view of investing them in a house or other real or leasehold property, and confers several advantages on societies established under it, the principal of which are simplicity of organisation and exemption from stamp duties (which, however, being much reduced are not of so much importance now as in 1836). On the other hand, Building Societies are hampered with restrictions that do not attach to companies formed under the Act of 1862; their investments are limited to real or leasehold estate; they cannot accept other security of any kind; they have no power to borrow; they cannot hold land; and, without these advantages, they are yet subjected to all the penalties of the winding-up clauses. When, therefore, it is desired to create a means of investment which shall be somewhat wider in its scope than the ordinary Building Society, it becomes necessary to register it as a Company; and this leads to the suggestion we have developed in the Prospectus and Plan contained in Chapter 3, further on. The proposition was originally brought forward by us in 1852, but was then suspended; the public mind not being prepared for the idea, *viz.*;—the formation, in each important town in the kingdom, of a *Local Enterprise Encouragement Company*, on the principle of the *French Crédit Mobilier*. The organisation of such a Company, as far as regards the depositing class of Members, would approach very closely to that of a Benefit Building Society; but, in the investment of its funds, it would be possessed of larger powers, enabling it to be made available for the general advancement of public undertakings of importance in the district.

3.—It will be seen that the sort of company we recommend to be formed is something very different from the large London Finance and Credit Companies, whose shareholders have suffered so severely during the recent monetary panic. A local society, taking no step except under the vigilant supervision of persons acquainted with every inch of the ground over which its financial operations would

extend, would be as little likely as an ordinary building society to run the risk of locking up its money in undesirable securities. It would contemplate none of those large and shadowy transactions in distant railways or foreign undertakings, which have been the cause of so much difficulty to the Finance or Credit Companies in the Metropolis. Moreover, it would not be compelled to go on to the Stock Exchange, or to ask for a quotation of its shares from any similar close Corporation, from which step so much mischief and disorder have lately arisen.

4.—However strange it may appear to those who see in a Stock Exchange only an embodiment of the principle of free trading in shares, and who do not admit that free trade in shares is not so beneficial as free traffic in every other commodity, there is no doubt that any company transacting business of a steady progressive character incurs the risk of much more injury than benefit by obtaining an "official settlement" on the Stock Exchange. It can be no advantage to such a company that its shares should be sought and held by persons who do not wish to remain members, and who are watching every turn of the money market to enable them to sell out at a profit. The class of shareholders it requires are those who invest in the concern from a *bonâ fide* interest in its welfare, intending to remain in it, to give their support and influence for the extension of its business, and to exercise a careful supervision over the soundness of its management.

5.—These remarks would apply if free trade in shares really existed on the Stock Exchange; but, as far as London is concerned, that is not the case; on the contrary, a most pernicious monopoly prevails.*

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* [The effect of this is graphically described by a writer who appears to be well acquainted with the inner life of the London Stock Exchange.

"In Paris and on the other Continental Exchanges, as well as in our own provincial Exchanges, transactions in securities take place through the medium of brokers, who are the mere agents of the outside public, and the seller receives the market value of his security from the purchaser, the only expense being the broker's commission, which is usually in England ½ per cent. on stocks, and from 6d. to 5s. on shares of £1 to £50, or from ½ to 2½ per cent.; and from one-half to one-third these rates on the Continent.

On the London Stock Exchange, however, and there only, there exists the class of

The practical results of the mysterious dealings of its members is easy to describe :—A perfectly sound and prosperous company may be brought to ruin by their means. Fictitious sales are made, and false rumours disseminated, to bring down the price of the Shares. If the company be one receiving deposits from the public, the depositors observe the downward tendency of the price of the stock, fancy something is wrong, and demand a return of their deposits. These must be met by borrowing upon the company's securities at ruinous cost for interest, or by selling them, or by making a Call on the shareholders. The possibility of adopting the first of these three courses depends upon the state of the money market; the second would probably entail heavy loss; and the third would force weak shareholders to sell to meet the call. The false rumours of difficulty

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jobbers who only buy what they are sure to be able immediately to resell, the result of whose operations is to foster, increase and aggravate speculation, and to entail an enormous tax, which is continually increasing, and probably amounts to upwards of a million a-year, on investors and speculators. It is more especially heavy on the light shares of the Finance and Marine Companies. If I want to sell, for instance, Union Marine shares, with £2 paid, at Liverpool, the last price being, say $\frac{7}{8}$ to 1 prem., my broker there seeks out another broker, employed by a purchaser, and deals, probably, at the middle price, or 15-16ths prem.; whilst, if I sell in London, I lose the "jobber's turn," and have to sell at $\frac{7}{8}$—a loss to me, and a gain to the "jobber," of 2 per cent., whilst, on reselling, he makes a similar profit; and if he only makes one such operation in the shares in each fortnightly account, his profit will be upwards of 100 per cent. in the year.

"This, however, is but a small portion of the "jobber's" gain; and if the "jobber" were merely like the retail dealer, who bought shares wholesale, and resold them, without "banging," "rigging," or other trickery, at a profit, the public would not be such considerable losers. But, in aid of the "jobber's" schemes, there comes into play the operation of the fortnightly settlement; and as the outside public are usually "bulls," or speculators for the rise, when this term approaches, the "jobbers," who are usually "bears," or speculators for the fall, by means of inventing and circulating false or exaggerated reports, and by "banging" the shares, produce, if they can, a depreciation in securities, or, at least, prevent them from rising; and, as the outside investors or speculators seldom buy at the end of an account, and as the expense of taking up registered shares is 10s. per cent. for stamps, besides transfer fees, the "jobbers," are able to make a further enormous profit in "jobbing in contangoes."

"This is the penalty paid for "continuing" the shares for a fortnight, and this charge varies on the light shares from 6d. to 2s. 6d., or from the rate of 10 to that of 50 per cent. per annum. If a rise does not take place within a few "accounts," the needy speculator is obliged to sell, and put up with his loss; but the wealthier operator, who goes in for large profits and slow returns, which is his only chance, and who thus saves "contangoes" and brokers' commission on "continuation," borrows money for from three to six months from his banker or broker, at 1 per cent. above the bank rate on deposit of a sufficient cover, and stipulates that he shall pay but one commission on buying and another on selling.

"If the tendency of the market is upwards, and discount is low, the "jobbers" immediately set afloat all sorts of reports of a probable decrease in the Bank rate of discount, of enormous dividends, colossal additions to reserves, prodigious sums to be carried forward, great names to be added to boards of direction, advantageous amalgamations to take place, large transactions entered into likely to be profitable; that Rothschild, Baring,

thus verify themselves. More depositors day by day demand repayment; more shareholders sell, as they see the value of their property melting away, and thus contribute to, and hasten, the ruin of their company. Well content, as long as a company prospers, to receive their high dividends, there is no cohesion among them in times of difficulty, but each, to save himself, disposes of the shares for anything he can get, and thus plays into the hands of the conspirators who have plotted the destruction of his property.

6.—If a company is not on the Stock Exchange, its position is very different. In times of difficulty, the shareholders can meet and discuss calmly, without the disturbance of out-door influences, the

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Peabody, or the directors are buying largely, and they then gradually "bull" the market by a tacit and common understanding, and raise the quotation by degrees, and the outside public, as a matter of course, urged by their brokers, rush in and buy on the rising markets.

"Suppose the quotation of certain shares to be $\frac{7}{8}$ to 1, when the "jobbers" see that the chances are favourable for "bulling." One or two of the more influential, wealthy and daring, whom all the rest follow like sheep, call them 1 to $1\frac{1}{4}$, feeling their way gradually as to how many they will sell at that price, and thus only risking their "turn" if sellers appear, whilst, if buyers preponderate, they then advance the quotation to $1\frac{1}{4}$ to $1\frac{1}{2}$, and so on, their leaders, perhaps, even risking somewhat more than the "turn" if the current is obviously strong in favour of the rise, whilst, at the bi-monthly "account,' they may, perhaps, call the "contango" "even," or 3d. "back," in order still further to encourage the "bulls" by the idea that it is a "bear" account.

"As soon as an opportunity occurs, or can be made, for turning round, such as a real or supposed rise in the rate of discount, or something disastrous or ominous in the affairs of one or more companies, then are set going rumours of failures and calls, reports of losses, surmises of diminished dividends, or of the withdrawal or bankruptcy of directors, or assertions that Rothschild, Baring, Peabody, or the directors are large sellers; and then the "jobbers" turn round and become "bears," or sellers, with all the additional leverage which it is so much easier to establish on the fears than on the hopes of speculators. By reversing the operation above described, by risking the "turn," and, perhaps, somewhat more, and thus "banging" the shares, a heavy and profitable fall takes place, which, besides benefitting the "bears," stimulates and increases the business of all the dealers.

"There is another rock on which speculators usually split, namely, that, when money is easy, bankers and brokers will lend almost any amount with a very small cover, but the moment there is a rise in the rate of discount, and a fall in shares, the cover is doubled or trebled, or the loan is called in, and the shares must be sacrificed at any cost in a falling market. Brokers are notoriously afraid of incurring the ill-will of "jobbers" by endeavouring to deal at too low a "turn,"—say 1-32nd, which is considered shabby, or by dealing with other brokers and thus depriving them of their "turn," to the advantage of their clients, or by opposing stratagem to stratagem, and saddling the "jobbers" with shares when they suppose the principal is a *buyer*, instead of allowing them to find out, as they usually do, that he is a frightened or forced seller, and then to "bang" the shares in order to enhance the "turn" to the utmost possible extent. Experience shows also that brokers are the very worst advisers either as to buying or selling, and frequently make mistakes in their own private investments."]

means that should be taken to retrieve its position. In times of extremity, they can agree voluntarily to wind up, and make the best of their property, without leaving it to be melted away by the combined action of the Stock Exchange and the Court of Chancery. In times of prosperity, too, greater prudence is likely to animate their councils, for a permanent investor will not be likely to sacrifice the future of his company to his desire for enormous present dividends, and will be more sensible of the importance of creating a large and proper Reserve than the mere speculator, who hopes, by the announcement of a good dividend, to create a rise in the market, and so get rid of his shares at a profit.

7.—The gravity of the error committed, when large dividends are declared without setting aside a sufficient Reserve or Equalisation Fund, has been amply shown by the condition of the several London Credit and Finance Societies; but, to avoid invidious reference to any of these, it will be sufficient to advert to the history of the Crédit Mobilier* of France, the parent institution of the kind, which might have served as a warning to those of our own country, but for the evil influence exercised upon them by the Stock Exchange. Up to the close of 1855, that society met with uninterrupted success. Its profits that year amounted to 50 per cent. upon the paid-up capital, and an actual division took place at about that rate. Succeeding years, however, showed a diminution of prosperity. The profit announced at the close of 1856 was barely more than half that of 1855, and the profit at the close of 1857 was scarcely more than a third of the profit of 1856; so that in that year the society found itself compelled to forego the declaration of any dividend—1857 being one of the decennial years of panic. The avidity of the

* [The balance sheet of the *Crédit Mobilier* of France, for the year ending 31st January 1867, shows a balance of liabilities, proceeding either from the account of profit and loss or from the decrease of the *portfeuille*, which is not less than 8,195,000f. The amount of advances to companies and of accounts current (indebted) is a little more than 106 millions against more than 130 millions representing accounts current (credit). One of the leading financial Journals of Paris remarks, that the fault committed in the management of the Crédit Mobilier is the facility with which advances have been made to companies. Prudence now requires that these advances should be got back as soon as possible, by getting the companies indebted to it to realize progressively their resources.]

shareholders for dividends, which led them to declare in one year the whole 50 per cent. profit that had been made, was thus the cause that no dividend at all could be declared two years afterwards; a reserve fund of only one-third would have allowed of a dividend exceeding 30 per cent., and yet have very sensibly mitigated the subsequent fall. It is strange that an expedient so obvious and salutary should not have been adopted.

8.—One fertile cause of improvident declarations of profit and dividends has been the mischievous provisions introduced into the Articles of Association of many companies, by which Directors are entitled to a given percentage on the profits declared, while they themselves are vested with authority to declare the amount of profit made;—thus not only awarding their own remuneration (which is bad in principle) but also made liable to the temptation to exaggerate the profits earned by the company. It may not be an unsound principle to make the remuneration of directors dependent on the profits made by a company, but those profits should certainly be ascertained and determined by some other authority than the directors themselves.

9.—Many of the errors of existing companies, indeed, arise from excess of power given to directors, and excess of confidence reposed in them. It is not unusual to hear language such as the following addressed by directors of companies to their shareholders:—"We are bound to study the interests of those who are connected with us in business; and for us to specify the manner in which the profits are derived, however satisfactory that would be to the shareholders, yet might injure others, or disturb the relations between ourselves and those with whom we transact business."* If shareholders are willing to accept this argument as unanswerable, they certainly cast upon the directors a very heavy responsibility, for confidence so generous and so unreserved ought never to be betrayed. We think, however,

* [These are the actual words of the Chairman at a meeting of a company held in the early part of 1865. The speech was followed by the declaration of a 10 per cent. dividend, and a cordial vote of thanks to the Chairman and Directors. Not a question was asked, and the whole proceedings occupied only a few minutes. The company is now winding up in Chancery.]

that such confidence should neither be asked by directors, nor accorded by shareholders, since the language we have quoted may at some time or other be used to burke a legitimate enquiry, or to cover an undesirable transaction. For this reason we recommend that, in Local Enterprise Encouragement Companies, shareholders should have full power to examine the accounts, general meetings should be held at least once every quarter, and no call should be made, except on the authority of a meeting of shareholders.

Provisions should also be introduced into the *Articles of Association to prevent the directors lending money on the company's shares, buying up shares on behalf of the company, or lending at all to members of their own body, or to the officials.

10.—It is not necessary, in this place, to go into many details as to the principles upon which a Local Enterprise Encouragement Company must be conducted to ensure success. It will be sufficient to give the following hints as to points of practice:—

I. *In making Advances:—*

1. Small Loans should be preferred to large ones, in order to multiply the investments and lessen the relative risk.
2. Loans for longer terms should be charged higher interest than for short loans.

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* [Many Articles of Association contain clauses fixing the remuneration and privileges of promoters, directors, and others, the effect of which should be carefully enquired into by intending Shareholders. A series of Companies, founded by a gentleman residing in Belgium, contain provisions in their respective Articles of Association, which are worthy of notice, as showing the gradual growth in that gentleman's estimate of the privileges of founders. After creating, in 1863, a partnership en commandite, of which he was Managing Partner (with 20 per cent. on the profits), he started in succession three Companies, which we will call A, B, C, each of which was, to some extent, auxiliary to the original concern. A was registered as a limited Company in London in the year 1864, and he was appointed by the Articles Managing Director for five years certain. The promoters (of which he was one) were to receive 10 per cent. on the excess of the profits over a 6 per cent. dividend for 90 years, and the Directors were to receive £6000 between them, and another 10 per cent. on the excess of profits. In Company B, likewise an English one, established January, 1865, but managed by this gentleman abroad, the promoters' 10 per cent. was to continue during the whole existence of the Company, and six-tenths of it were to be placed at his sole disposal. Company C was established in England in September, 1865, and by the Articles this gentleman was again appointed Managing Director, but this time for seven years, with 5 per cent. of the surplus profits for himself; the Directors were also appointed for seven years; and the promoters' remuneration was increased to 20 per cent., the whole to be placed at his sole disposal.]

3. In every transaction a margin in the security given should be required, increasing in amount with the period for which the advance is made.

II. *In receiving Deposits* (if that be part of the business proposed to be transacted by the Company) :—

1. A low rate of interest only should be promised on deposits for a short term, or withdrawable at short notice;—the interest being graduated according to the term for which the deposit is made, or the notice agreed to be given.
2. The whole of a Depositor's account should not be allowed to be withdrawn at once, but by successive notices of one-fourth or one-fifth at a time.

The success of every company, however, depends mainly upon the providing effective independent supervision over its management. We shall proceed, in the next Chapter, to show how, practically, this should be done.

†Chapter II.

Remarks on the Audit and Management of Enterprise Encouragement Associations, and of Public Institutions generally.

Art. 11.—To protect the Local Enterprise Encouragement Associations, whose formation we suggest, from the shipwreck which has befallen many Joint-Stock Companies in London, effective audit and judicious management are of the highest necessity. In order to insure success it is becoming recognised that the management should approach as nearly as possible to the form of *Executive individuality*,* a fact which the prosperity of ordinary trading firms sufficiently demonstrates.

But as even such an executive is likely to be less cautious in the management of other people's money than of its own, there arises the necessity of a thorough audit of the Society's affairs, and of surveillance over the executive body.

For one company that fails by dishonesty or from want of skill on the part of the chief official, ten come to grief from careless supervision. The best form of direction is an Executive Committee of five shareholders; for, judging by analogy, the prosperity of a public company can only be secured by the same system of concentrated

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* [In addition to executive individuality in the management, the objects of the association should be few and all of like kind.

The *Credit Mobilier* of France is tending to failure, because it has attempted a *multitude of operations*, each requiring special knowledge and experience. Where the management is directed to a variety of purposes, its want of concentration renders it weak and inefficient.

An association of such a multiform character is also more likely to be affected by social disturbing causes, than where one object alone is kept in view.]

† [Extracted from Part VI. of the Treatise on Savings Banks.]

personal management, as is adopted in the great private commercial firms of this country.

12.—Experience has, unhappily, shewn that all Joint-stock associations are liable, if surveillance be not exercised, to losses from frauds;* and an opinion has become prevalent that the time is come for some legislative enactment to secure not only a better and closer audit of the *account-books* of a company or bank, but also for enabling auditors to make inspection (where circumstances appear to require it) of the *minutes* of the Board of directors and the *letter-book* of the Secretary.

Some years back we submitted to the Board of Trade the draft of a Bill for a system of audit and inspection. The clauses recommended in the Bill, in order to carry it into effect, we give below.†

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* [Frauds, of course, are not peculiar to any country. For example, in France, it was stated on the trial of the notorious Prost,—who was condemned to three years' imprisonment, £40 fine, and to restore £21,533 (sterling) to the shareholders he had defrauded—that since 1857, the Managers of not fewer than forty companies *en commandite* had been prosecuted for fraud, and that the amount of shareholders' money which they had "absorbed" was not less than £1,600,000 sterling. The punishment, however, was not allowed to rest on Prost alone, and in this respect it may be remarked they *do* "do these things better in France," for the Court declared the members of Prost's *conseil de surveillance* responsible for the £21,000 ordered to be refunded to the shareholders, on the ground that it was owing to their neglect of duty that Prost was enabled to commit the frauds.]

Proposed Audit Clauses.

† ["1. The Directors of each Bank or trading company in Great Britain and Ireland shall within three months after the passing of this Act, and from time to time, at intervals of three years, or, in case of a vacancy, within one month thereof, summon the customers, depositors, or other creditors, not being shareholders of the said bank or public company, to meet together at the offices of the bank or company, in order to appoint or reappoint two or more Inspecting Auditors of the said bank or company; and the said Directors shall, immediately after such appointment, transmit the signature, name, and address of each of the Inspecting Auditors to the Board of Trade; and the Directors of every Joint-stock Bank or public company shall cause the annual and other statements required to be transmitted under the Acts relating to Joint-stock Banks or public companies to be certified and verified by the Inspecting Auditors so appointed by the said depositors or others as aforesaid, in addition to the attestation now required by the said Acts, and shall also cause a certificate from the said Inspecting Auditors, as to the result of their examination of the books, to be transmitted to the Board of Trade.

"2. The summons for the election of the Inspecting Auditors as aforesaid shall be by advertisement in two or more of the local newspapers, and by announcement affixed in a conspicuous part of the offices of the bank or company, and the creditors shall have power to adjourn their meeting or meetings for the election of Inspecting Auditors, at intervals of not more than fifteen days, as often as may appear to them necessary for the better selection of such Inspecting Auditors. And it shall be lawful for them to delegate

13.—Under the proposed system, it is evident that if the Depositors or claimants do their duty, and appoint professional accountants of sagacity and experience, then the existence of such Inspectors and the possibility of their exercising their power at unexpected seasons would act as a check upon fraudulently-disposed officials and remove the opportunity which creates the crime.

That Government has hitherto taken no steps in the matter may be attributed to the unwillingness of the Legislature to interfere with the supposed right of every one to manage his own affairs as he may think best; but whilst society is willing to recognise that right, as regards private individuals, it does not follow as a consequence that it is proper when a number associate together for the purpose of monetary transactions with the rest of the community. Experience is beginning to shew that it is easier to obtain information as to the responsibility and credit of private persons, than—under the present

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Proposed Audit Clauses—(continued).

the selection of Inspecting Auditors to a Committee of their own body, not less than twelve in number, of whom none shall be acting at the time as Trustee, Director, or Manager of the bank or company. The Inspecting Auditors elected may be either creditors or accountants (publicly acting in such capacity); provided always, that in the event of no such election being made within three months after a vacancy has occurred in the office of Inspecting Auditor, the Directors shall report the same to the Board of Trade; which shall, with all convenient speed, appoint Inspecting Auditors for the purposes hereinafter provided.

"3. The Auditors shall have power, without notice, to attend and inspect the account books and all other books or documents of the bank or company they require; and from time to time may cause the books of depositors or customers of a bank, or claims of creditors, to be produced at the offices, for the purposes of being inspected, examined, and verified with the books of the bank or company by them.

"4. It shall be lawful for the Board of Trade, and they are hereby authorised and empowered to settle and appoint the allowances to be paid for the services, pains, and labours of such Inspecting Auditors, in manner and for the purposes aforesaid, out of the funds upon which the expenses of management of the said bank or company are chargeable by the Deed of Settlement.

"5. It shall be the duty of all officers of the bank or company to produce, for the examination of the Inspecting Auditors, all books or documents in their custody or power.

"6. Any Inspecting Auditors may examine on oath the officers and agents of the bank or company in relation to its business; and may administer such oath accordingly. If any officer or agent refuses to produce any such book or document, or to answer any question relating to the affairs of the bank or company, he shall incur a penalty not exceeding five pounds in respect of each offence.

"7. A copy of the report of the Inspecting Auditors, authenticated by the seal of the bank or company into whose affairs they have made inspection, shall be admissible as evidence in any legal proceeding."]

system of audit—as to the solvency and internal honesty of associations.

14.—*As to Directors and Auditors.*—The frauds in public companies may be mainly attributed to the fact, that the Directors, in too many instances, are either so engrossed in their own affairs, or possessed of too little knowledge of the details of the company they profess to govern, to enable them to be very accurately informed of its actual financial condition.

Directors would, perhaps, answer that they rely upon the appointed Auditors;—but that would be only justifiable when those officials are professional accountants.

The generality of Auditors elected by Shareholders are persons having no repute for experience in matters of finance, and their audits, in consequence, are little more than an illusion. Auditors, to be of any real value, should be in the character of Committees of Surveillance, and should not be expected to content themselves with checking the vouchers for payments, and the accuracy of the items entered in the office-books. As long as it is considered a piece of interference on the part of the Auditors if they desire to extend their investigations beyond the accounts of a company, they can give no guarantee either to the Shareholders or to the *Creditors that all the transactions of the Directors and officials have found a record in the books.

Hence the present system of audit is in the highest degree pernicious, for it tends to create the idea of security where none is really given.

15.—The public mind is perplexed as to how fraud can be prevented. It is urged, that when a concern is not managed entirely by one proprietor, somebody must be trusted, and that Auditors would not be able to prevent forgery or the falsification of accounts. This objection is groundless, for fraud begins when neglect of surpervision in the management commences; and the best way to prevent fraud is to introduce a system which will create a fear of detection.

* [*By the word "Creditors" of a Bank would be meant the Customers or Depositors.*]

It is not to be expected that Directors, who meet but once or twice a-week for an hour or two, can have any very detailed knowledge of the finance of a company; and, even if they had the leisure, it does not follow that those, who manage a concern, would be the best persons to audit its accounts.

Unhappily, moreover, the culpability of the Directors is not always limited to laxity of management, but appears to have had rise in some instances, if we may judge by recent exposures, from an unworthy desire to commit and conceal dishonourable operations with the funds entrusted to their care.

* The real source of the disease is the inefficiency of the system of audit now in force. The gentlemen appointed are too often the nominees of the Directors, even where they appear to be elected by the Shareholders, and owe their election, not so much to their skill in investigating accounts, as to their being friends of the managing officials. Not unfrequently do they take their first lesson in auditing books at the company which they are appointed to investigate.

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* [An aggrieved bank shareholder writes on this subject:—"Some few years ago, when joint-stock accounts were admitted to have been 'cooked,' and when Government audit was objected to (perhaps warrantably objected to, in so far as likely to be palmed off for a Government voucher), a printed appeal for a remedy was circulated among Directors themselves; but instead of concerting proper principles of audit, the Directors, constrained to engage public accountants for the unravelling of old complications, were content with engaging such gentlemen upon their permanent staff for the avoidance of like complications in the future. Since then we have seen the attestations of eminent accountants paraded at the foot of accounts, the responsibility of which, in the popular sense, they repudiate. In sooth, their own appointment having become another bit of directorial patronage, and their multifarious engagements preventing due personal tests of returns, accepted by their own subordinates from the official subordinates, such returns are carried to account agreeably to 'established precedents,' or to 'official prescription;' whereas, what is wanted is some independent and uniform system of charge and discharge, always commensurable by common standards, and intelligible to the uninitiated as well as to those behind the scenes.

"What then is required is, not to supersede routine, but to apply sagacity and experience at unappointed times, and in unexpected places, for the testing of the actual routine is sufficient for ever-changing circumstances. *While simple-minded, hard-working Auditors have been pottering over huge folios which engross and divert their energies, corporate property has been fraudulently wasted notwithstanding, and that, too, by means of the very accounts which Auditors have verified.*" With the view of providing more efficient control over the management of Banking Companies, a Bank Manager suggests that the London Joint-stock Banks should form themselves into an association to be called the "Associated London Banks":—

1. That one person from each subscribing bank, either a director or the manager, as shall be decided, shall be deputed to represent that bank at the committee of the A. B.

2. That such committee should prepare and submit for approval to the respective boards of the subscribing banks, such general rules as shall be deemed necessary for the

Nor, indeed, is it sufficient for an Auditor to be merely an honourable man, for it requires special experience to know where the hands of the "cook" may be traced in a series of accounts.

16.—We repeat, therefore, that, however excellent associations may be in principle, their success cannot be secured, when they are only nominally managed by a Board, however respectable, unless the Directors be sufficiently limited in number to secure unity of mind and regularity of system, so that the objects of the Society may be carried out in its most minute details. A large, and, what is generally termed, an imposing, first-class, Board of Directors is frequently careless in the discharge of its duties. From the want of regularity in the attendance of its members, there arises a want of unity in their deliberations. Knowing little or nothing of the real working of the institution, and deceived by a certain audacity of manner and jaunty bearing on the part of their chief subordinate officer, directors not

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guidance of the subscribing banks, in conducting their business on sound banking principles.

3. That the committee should draw up and have printed for the use of the subscribing banks, a set of forms of the returns to be made every three months to the committee by each of the banks, such forms to be of such a nature as to show the exact position of the bank at date, and to enable the committee to decide that each bank is keeping strictly within the rules laid down.

4. That the committee shall not have the power of altering any of the above-named rules when once agreed upon, without the sanction of the majority of their respective boards.

5. That the committee shall appoint a secretary and the necessary staff of clerks required for the working of the association, and that the expenses be borne by a subscription from the banks, regulated in proportion to the capital of each bank.

6. That any bank, a member of the association, having fulfilled all its rules, and honestly rendered the required returns, should, in the event of a run upon it, receive from the other members of the association the required assistance, even to the payment of *all* its *liabilities*.

7. In the event of any bank so losing the public confidence as to necessitate the meeting of all its liabilities by the association, such bank to cease business, and to hand over all its assets to the committee for realisation, and also full power to enable the committee to recover from the shareholders of such bank. Thus the committee would become the liquidator, and avoid all law expenses.

9. That the association and the names of its members should be fully advertised. Thus the public would see that their deposits with any of the members were guaranteed, not only by its individual capital and management, but also by the capital and surveillance of the associated bankers.

10.—Any member of the association neglecting or refusing to comply with the rules laid down, shall cease to be a member, and be advertised accordingly, and the association become no longer liable to support it.]

unfrequently leave the administration of its affairs too much in his hands.

Hence there arises, from his impropriety of conduct or want of capacity, a variety of circumstances, which, fostered by supineness on the part of the Directors, have brought many a scheme, excellent in the abstract, to bankruptcy, and inflicted great injury on the community.

17.—To provide, then, a sufficient bar to dishonesty, or curative to lack of principle, a Committee of two professional Inspectors should be appointed, whose duty it should be to exercise a surveillance over the Executive Committee, without interfering in the acts of management, except to report what is being done to the constituents of the Company or Shareholders. The Inspectors should not both be simply accountants: one at least should be required to possess some legal, as well as professional knowledge, of the matters pertaining to the particular class of business they are called upon to supervise. They should be required to test the accuracy of the reports from time to time submitted by the Managers; and to watch that all their measures taken are in strict accordance with the Deed of Settlement, and the objects and principles of the Society. These Inspectors should be men of fair position in life, and be adequately paid. Their tenure of office should be limited, and fresh Inspectors should be appointed—under a Rotation system—every two or three years. They should, more particularly, *not be permitted to send their clerks to do the work* which they have undertaken, and for which they have been personally selected.

Thus would they have the strongest incentive to the faithful discharge of their duties, since, by any neglect, they would not only lose the particular appointment they hold in one society, but render themselves ineligible to like offices in other institutions.

18.—If it be objected, that in some recent notorious failures the management was intrusted to men of supposed superior position in life, we answer, that in those very instances the public were deceived

by an apparently respectable Board of Directors placed over the company's officials, who, while they were not ashamed to draw large remuneration out of its funds, were yet too indolent to exercise a necessary and wholesome supervision over its affairs. This would not have occurred had there been Inspectors attached to the association, instead of a large body of Directors, who had no such special experience as would enable them to detect the irregularities that were occurring.

Chapter III.

Draft of a Prospectus for a

Local Enterprise Encouragement Company (Limited).

Capital £

With power to increase.

Shares, £10 each,—in three Classes:—

[A and B not withdrawable, C withdrawable].

Class A.—*Paid-up Shares,* on which £1 is to be paid on application, and the remainder on allotment.

Class B.—*Shares at Call,* on which £1 is to be paid on application, £1 on allotment, and the remainder to be called up when required by the Company, in sums not exceeding £1 at each Call, nor at less than three months' notice.

Class C.—*Withdrawable Subscription Shares,* to be paid up in full by fixed monthly or quarterly instalments, extending over given terms of years (*on the Building Society plan*), and credited with a Preference Dividend by way of Compound Interest, at the rate of four per cent. per annum, and with a Bonus at the end of the term.

The liability of Shareholders is limited to the amount of their Shares.

Officers.

Directors.

Inspecting Committee.	Audit and Check Committee.
Solicitor.	Consulting Actuary.
Surveyors.	Bankers.

Secretary.

The objects of a Local Enterprise Encouragement Company, to be set forth in the Memorandum of Association,* should be one or more of the following, according to the opportunities and requirements of the locality :—

"1. To *purchase* Government Stock, and Shares and Securities of every kind in local firms or local *public undertakings*, either now or hereafter established.

"2. To *create* and *encourage* local *undertakings* of every kind, such as railways, canals, workshops, docks, lighting of streets, &c., *extension of tillage*, irrigation, drainage, and every other species of enterprise connected with local industry.

"3. To effect the *Amalgamation* or *Transformation* of any commercial companies whatever in the district, and to undertake the *issuing of Shares or Debentures* of such companies.

"4. To *contract for Loans* to the provincial and local authorities.

"5. To *administer*, adopt, or take upon lease, contributions and undertakings for local *public works* of every kind; to take contracts and carry them out, either on account of the Company, or by letting them to sub-Contractors.

"6. To do all acts and things necessary or expedient for realising and obtaining the full benefit of all securities or property on which any monies of the Company are advanced.

"7. To discount local bills of exchange, promissory notes, bonds, and other securities and obligations; to deal in exchanges, specie, securities, and other representatives of value; to receive money on loan or deposit; to negociate loans of every description; to advance money on deposit of title deeds, securities, local contracts, agreements, covenants, bills of sale, bills of lading, delivery orders, and other mercantile documents.

* [A variety of objects are herein suggested, but each Company will select such as come within its scope and design.]

"8. To take and realise securities, both real and personal:—to buy and sell produce, merchandise, stocks, shares, bonds, mortgages, debentures, and obligations of every description.

"9. To *collect debts* and *revenue* on behalf of *other local companies*, public corporations, and *private* individuals, to pay their coupons of interest and dividend, and to transact commissions of every kind as local *agents*.

"10. To guarantee Loans, raised elsewhere by third parties, to a limited extent, (not exceeding in any particular case per cent. of the paid-up capital of the Company).

"11. To treat, act, unite, or amalgamate with, buy up, or absorb, any other local Company.

"12. Generally, to exercise all the powers and perform all the duties of a LOCAL ENTERPRISE ENCOURAGEMENT COMPANY.

"13. To do all things the Company from time to time consider to be incidental or conducive to the attainments of its objects, or otherwise for its benefit."

SHARES in Class C become realised by the following Monthly and Quarterly payments, which are calculated upon the Building Society principle, allowing Compound Interest at four per cent. per annum:—

Term of Years.	Monthly Payment to realise One Share of £10. with a Bonus at the end of the term.			Quarterly Payment to realise One Share of £10. with a Bonus at the end of the term.		
	s.	d.		£.	s.	d.
Two Years	8	3		1	4	7
Three Years	5	5		0	16	1
Four Years	4	0		0	11	10
Five Years	3	1		0	9	3
Seven Years	2	2		0	6	5
Ten Years	1	5		0	4	3

They rank for Surplus Dividend on the amount of subscriptions paid up by the *commencement* of the financial year, and upon realization are exchangeable for Shares in Class A, if not withdrawn.

The Company receives DEPOSITS of not less than £10, at rates of Interest increasing with the period for which the amount is deposited; for example (Rates for the present year)—

If the Deposit be for		6 months certain,			per cent.
If	,,	,,	12	,, ,,	per cent.
If	,,	,,	2 years	,,	per cent.

Deposits for longer periods, or repayable by instalments, at special rates.

The Company issues DEBENTURES, repayable in fixed periods of years, at rates of Interest payable half-yearly, varying according to the duration of the Debenture.

The net profits will be ascertained yearly, and if, after providing for Interest on deposits and debentures, and for the preference compound Interest and Bonus on the shares in Class C, they exceed the amount required to pay a dividend of *— per cent. on the shares in Classes A and B,—such excess will be applied as follows:—

One-third to a *Permanent Guarantee Fund,* reducible periodically, as set forth in the Articles of Association.

One-third to an *Equalisation Fund* for future Dividends.

And One-third by way of surplus Dividend for the current year on the shares of all three classes.

* [The Shares in Classes A and B not being withdrawable, and having no guaranteed dividend, should receive a higher interest than that credited to Class C shares, before any surplus dividend is allotted among the three classes alike.]

Chapter IV.

Proceedings necessary to register a Company under the Companies' Act, 1862.

Art. 1.—For the convenience of persons who desire to establish *Local Enterprise Encouragement Companies,* we state here the proceedings necessary to obtain incorporation for an Association of the kind, with limited Liability. No Prospectus should be issued, or public act of any kind taken, until the Company has received legal incorporation. For this purpose, it is necessary that the Promoter should associate with himself six other persons, as signataries of the Memorandum and Articles of Association. As the names of the seven are publicly and permanently registered at the Government Registration Office as the first members of the Company, it is desirable that they should be persons occupying a position of some influence in the district.

2.—The Memorandum of Association must be in the following form :—

"1st.—The name of the Company is "The .....Limited."

"2nd.—The registered Office of the Company will be situate in [England.]

"3rd.—The objects for which the Company is established are [here set forth such of the objects mentioned in the last chapter as are proposed to be undertaken, not omitting the general clause, there numbered 13.]

4th.—The liability of the members is limited.

5th.—The Capital of the Company is .....pounds, divided into ..... Shares of ten pounds each.

"We, the several persons whose Names and Addresses are subscribed, are desirous of being formed into a Company, in pursuance of this Memorandum of Association, and we respectively agree to take the number of Shares in the Capital of the Company set opposite our respective names."

Then follow the names, addresses, and descriptions of the seven or more subscribers (each of whom must take at least one Share, and must write opposite to his name the number of shares he takes), the date, and the name and address of a witness to the signatures. The Memorandum of Association must be registered at the Joint Stock Registry Office in Serjeant's Inn, Fleet Street. The fee payable on Registration depends upon the Capital of the Company, and is according to the following Scale :—

			£.	s.	d.
Capital not exceeding	£2000	Fee	2	0	0
" " "	£3000	"	3	0	0
" " "	£4000	"	4	0	0
" " "	£5000	"	5	0	0
(every additional £1000 up to £100,000, 5s. extra.)					
Capital not exceeding £100,000		"	28	15	0
(every additional £1000 up to £525,000, 1s. extra.)					
For any amount exceeding £524,000		"	50	0	0

These fees are collected by stamps, which are supplied by the authorised agents.

3.—The Memorandum of Association may be accompanied by Articles of Association, in which the various domestic provisions that are to bind the Members of the Company in their relation to each other as directors, office bearers, or shareholders should be simply and carefully set forth. If no Articles of Association are registered, then the Company is bound by the model set contained in Table A of the first schedule to the Companies' Act;—but as some of the provisions of Table A might be inapplicable to the intended Company, and as it can contain no special clause appertaining to the particular business proposed to be transacted, inconvenience would probably arise from leaving the Company on this footing. Some legal authorities have advised, in consequence, that every Company should provide that none of the Articles of Table A shall apply to it, and should frame an entirely new set for itself. With this advice we do not concur: we think the better plan is to adopt such of the provisions of Table A as appear to be applicable, and specifically to repeal in detail such as it is thought undesirable to adopt. The first Clause,

therefore, of the Articles of Association of the Company should be as follows:—

> "1.—All the Regulations contained in Table A in the first Schedule to the Companies' Act, 1862, shall apply to this Company, except in so far as it is otherwise expressly provided herein."

The promoters and their legal adviser should carefully search and consider the several Clauses of Table A, and if they desire to alter any, should insert in their Articles the following:—

> "Article of Table A aforesaid shall not apply to this Company."

They should then set forth at full length the amended Clauses they intend to adopt, and also any additional provisions, not contained in Table A, which they think it desirable to make for the future guidance of the Company.

4.—The Articles of Association must be printed, and signed by the subscribers to the Memorandum of Association, and a fee of 5*s*. is payable on registration of them. Upon registration, they are binding upon all persons who are or become Shareholders to the same extent as if they had been signed and sealed by each, and cannot be altered except by a Special Resolution of the members, that is, one carried by three-fourths of those present at a meeting, and confirmed by a majority of a subsequent meeting.

5.—Upon receipt of the Memorandum of Association, the Registrar of Joint Stock Companies gives a certificate that the Company is incorporated, and the Subscribers may immediately proceed to issue their prospectus, allot shares, and generally exercise all the powers which the Company possesses. The objects set forth in the Memorandum should be quoted in the prospectus, so that no person applying for shares may hereafter be able to say that he was unaware of them:—but at the same time, every Shareholder in any Company whatever, should bear in mind, that it is not only his right but his duty to make himself acquainted with all the provisions of those documents to which, by agreeing to take Shares, he has made himself a party.

APPENDIX

ERRATA.

Owing to an accident in the type, the following errors may be found in this work :—

Art. 2, page 2, line 18 from top, *for* $\left(n + \frac{a}{b}\right)$ *read* $\left(n_1 + \frac{a}{b}\right)$

Art. 9, page 5, line 12 from bottom, *for* a *read* as.

Art. 18, page 11, bottom line, *for* $\frac{30}{\cdot 1592}$ *read* $\frac{30}{1\cdot 1592}$

Note to Art. 51, page 26, the denominators (i) of the fractions dropped.

Art. 56, page 31, bottom line, *for* Log. $\frac{4}{-}$ *read* Log. $\frac{4}{3}$

Art. 61, page 34, line 13 from bottom, *for* $\frac{P \,.\, i}{m}$ *read* $\frac{P \,.\, i'}{m}$

Art. 78, page 40, line 10 from top, *for* $\dfrac{p_n}{p_n + \frac{S'_n}{m}\left\{(m-1)\,d + d'\right\}}$ *read* $\dfrac{p_n}{p_n + \frac{1}{m}\left\{(m-1)\,d + d'\right\}}$

P . i ,, ,, £P for the same time.

∴ The amount of P with interest in one year is P . $(1 + i)$.

Again, the amount of P with interest in *two* years will, of course, be equal to its amount, at the end of *one* year, re-invested for a second year; or, to the amount of P . $(1 + i)$ with interest in one year; that is, it will be equal to

$$P \,.\, (1 + i) + i \,.\, P \,.\, (1 + i)$$
$$= P \,.\, (1 + i)^2$$

Similarly the amount of P with interest in three years is

$$= P \,.\, (1 + i)^3$$

and so on for n years, where n is any *integer*,

$$\therefore\ Z = P \,.\, (1 + i)^n \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (1).$$

In the above the time is expressed in years, but, from the nature of the

* [The theorems and articles marked thus † have a special relation to each other.]

therefore, of the Articles of Association of the Company should be as follows:—

> "1.—All the Regulations contained in Table A in the first Schedule to the Companies' Act, 1862, shall apply to this Company, except in so far as it is otherwise expressly provided herein."

The promoters and their legal adviser should carefully search and consider the several Clauses of Table A, and if they desire to alter [illegible] to Articles the following [illegible]

5.—Upon receipt of the Memorandum of Association, the Registrar of Joint Stock Companies gives a certificate that the Company is incorporated, and the Subscribers may immediately proceed to issue their prospectus, allot shares, and generally exercise all the powers which the Company possesses. The objects set forth in the Memorandum should be quoted in the prospectus, so that no person applying for shares may hereafter be able to say that he was unaware of them:—but at the same time, every Shareholder in any Company whatever, should bear in mind, that it is not only his right but his duty to make himself acquainted with all the provisions of those documents to which, by agreeing to take Shares, he has made himself a party.

APPENDIX.

THE following pages (which were first published in 1849) contain the elementary propositions of Compound Interest, which relate more particularly to the system of Benefit Building, and other Investment, Societies, together with* several new theorems, which we then specially deduced as bearing upon the subject. *In Section* 4 *will be found the practical application of these principles to the circumstances of* Industrial Associations; *and in Chapter* 2 *of Part* I., *a popular statement of their leading features.*

SECTION I.

On the Accumulation of a Single Sum at Compound Interest.

ART. 1.—To find the amount Z to which a sum P will accumulate in n years at compound *yearly* interest i per pound.

Since i is the interest on £1 for one year, or

P . i „ „ £P for the same time.

∴ The amount of P with interest in one year is $P.(1+i)$.

Again, the amount of P with interest in *two* years will, of course, be equal to its amount, at the end of *one* year, re-invested for a second year; or, to the amount of $P.(1+i)$ with interest in one year; that is, it will be equal to

$$P.(1+i) + i.P.(1+i)$$
$$= P.(1+i)^2$$

Similarly the amount of P with interest in three years is

$$= P.(1+i)^3$$

and so on for n years, where n is any *integer*,

$$\therefore Z = P.(1+i)^n \ldots\ldots\ldots\ldots\ldots\ldots (1).$$

In the above the time is expressed in years, but, from the nature of the

* [The theorems and articles marked thus † have a special relation to each other.]

reasoning, equation (1) will represent the amount of P at the end of an *integral* number of any intervals of time, at the end of each of which interest is due after the rate of i per pound.

REMARK.—The amount of a given sum, at the end of any number of periods of time, does not depend on the *length* of time in each period, but only on the *number* of them, and the quantity of interest due or payable at the end of each.

2.—The equation (1) is, in strictness, not applicable when n is a fractional number of the form $n_1 = n + \frac{a}{b}$, where n_1 is an integer and $\frac{a}{b}$ a fraction of a year, as the interest was supposed only due at the *end* of successive equal intervals of time, and, theoretically speaking, no allowance of interest can be made for the broken portion $\frac{a}{b}$, consequently, this hypothesis must always be remembered, and if results be deduced from equation (1) relative to n, n must always prove to be a whole number (see Art. 11). In commercial questions, nevertheless, it is usual in such cases to calculate by equation (1) the amount due at the expiration of the last full period, and to add to it simple interest for the fractional remainder of the time; so that

The amount of P in $\left(n_1 + \frac{a}{b}\right)$ years

= amount of P in n_1 years + simple interest on that amount for the portion $\frac{a}{b}$ of a year.

$$= \mathrm{P} \,.\, (1 + i)^{n_1} + \frac{a \,.\, i}{b} \times \mathrm{P} \,.\, (1 + i)^{n_1}$$

$$= \mathrm{P} \,.\, (1 + i)^{n_1} \,.\, \left(1 + \frac{a \,.\, i}{b}\right) \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots (2).$$

3.—If the interest be due, in equal instalments $\frac{i}{m}$, at the end of each interval of time equal to the mth part of a year, the amount at the end of $m\,n$ intervals will be

$$\mathrm{Z} = \mathrm{P} \,.\, \left(1 + \frac{i}{m}\right)^{m \,.\, n} \ldots\ldots\ldots\ldots\ldots\ldots (3).$$

This result can be adapted to the case of interest being paid, or due, half-yearly, quarterly, or monthly, by making $m = 2$, 4, or 12 respectively.

4.—If the interest be supposed due momentaneously, or at the end of each moment of time, in equal portions $\frac{i}{m}$, m being infinitely large, then the result in equation (3) assumes a peculiar form.

For, expanding by the Binomial Theorem,

$$Z = P \cdot \left\{ 1 + \frac{m \cdot n}{1} \cdot \frac{i}{m} + \frac{m \cdot n \cdot (m \cdot n - 1)}{1 \cdot 2} \cdot \frac{i^2}{m^2} + \ldots \text{ etc.} \right\}$$

$$= P \cdot \left\{ 1 + \frac{n \cdot i}{1} + \frac{n \cdot i \cdot \left(n \cdot i - \frac{i}{m}\right)}{1 \cdot 2} + \text{etc.} \right\}$$

$= P \cdot \left\{ 1 + \frac{n \cdot i}{1} + \frac{(n \cdot i)^2}{1 \cdot 2} + \ldots\ldots \right\}$, since the terms containing $\frac{i}{m}, \frac{i^2}{m^2}$, vanish when m is infinite.

$$\therefore Z = P \cdot e^{n i} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (4).$$

e being the base of the Napierian or Hyperbolic logarithms, and $= 2{\cdot}71828$, etc., nearly. (See any Treatise on Algebra.)

To this equation we will return further on.

5.—Since $(1 + i)^n$ can be put under the form $(1 + i)^{n_1} \cdot (1 + i)^{n_2}$ where $n_1 + n_2 = n$, we have *Theorem* 1 :—*That the* amount *of* £1 *at the end of* n *years by the accumulation of Compound Interest is equal to the product of its* amounts *at the end of* n_1 *and* n_2 *years respectively.*

This property serves to make Table 4 give results, which are not contained within its limits.

Example.—Let $n = 60$.

The last number in the table is 50, let $n_1 = 50$, then $n_2 = 10$

And the *amount* at the end of 60 years = £11.4674 × £1.6288 at 5 per cent. = £18.6781.

Similarly, if $n = n_1 + n_2 + \ldots\ldots\ldots\ldots + n_r$

$$(1 + i)^n = (1 + i)^{n_1} \cdot (1 + i)^{n_2} \ldots (1 + i)^{n_r}$$

6.—From the preceding expressions it is seen that:

When interest is payable more frequently than once a year, there is a difference between the nominal *annual rate of interest, and the* true *rate or* actual annual interest *realized.*

For if $i =$ the *nominal* yearly rate of interest per pound, and it be payable in m periodic equal portions $\frac{i}{m}$ in the course of a year, then supposing each instalment to be invested and to bear interest after the same nominal rate,

The *true* rate = the amount of £1 at the end of *one* year − £1.

$$= \left(1 + \frac{i}{m}\right)^m - 1 \ldots\ldots\ldots\ldots\ldots\ldots\ldots (5).$$

If the interest be realized momentaneously, then

The *true* rate of interest becomes $= e^i - 1$ ..... (6).

Hence a table may be formed showing the *true* rate per pound for various values of m.

If $m = 2$, the true rate for interest paid *half-yearly*

$$= \left(1 + \frac{i}{2}\right)^2 - 1 = i + \frac{i^2}{4}$$

$m = 4$, the true rate for interest paid *quarterly*

$$= \left(1 + \frac{i}{4}\right)^4 - 1 = i + \frac{3}{8} i^2 + \frac{i^3}{16} \text{ nearly.}$$

$m = 12$, the true rate for interest paid *monthly*,

$$= \left(1 + \frac{i}{12}\right)^{12} - 1 = i + \frac{11}{24} i^2 + \frac{55}{432} . i^3 \text{ nearly.}$$

$m = 52$, the true rate for interest paid *weekly*

$$= \left(1 + \frac{i}{52}\right)^{52} - 1 = i + \frac{51}{104} . i^2 + \frac{425}{2704} i^3 \text{ nearly.}$$

$m = \infty$, the true rate for *momentaneous* interest,

$$= e^i - 1 = i + \frac{i^2}{2} + \frac{i^3}{6} \text{ nearly.}$$

The two last results show that the weekly and momentaneous rates of interest differ but little.

Table 5 has been computed from the above formulæ by giving to i different values for successive rates of interest, and it is accurate to three places of decimals.

7.—In equation (6) let $k = e^i - 1$.

Taking Hyperbolic logarithms,

$$i = \text{Log}_e (1 + k) \quad \ldots\ldots\ldots\ldots\ldots\ldots (7).$$

And this equation gives the nominal annual rate of interest i, realized momentaneously, which corresponds to a *yearly* rate of interest k.

Example: Let $k = \frac{5}{100}$

$$\therefore i = \text{Log}_e (1 . 05) = .04879$$

or £4.879 per cent. per annum momentaneous interest is equivalent to 5 per cent. per annum paid yearly. (See Table 6.)

8.—If the *amount* Z of a sum P at the end of n years be given by the tables at *yearly* interest, the amount Z_1 can be deduced when interest is payable m times a year.

$$\text{For } Z_1 = P . \left\{1 + \frac{i}{m}\right\}^{m . n} = P . \left(1 + i\right)^n . \left\{\frac{\left(1 + \frac{i}{m}\right)^m}{1 + i}\right\}^n$$

$$= Z \cdot \left\{ \frac{1 + m \cdot \frac{i}{m} + \frac{m(m-1)}{1.2} \cdot \frac{i^2}{m^2} \cdot + \text{etc.}}{1 + i} \right\}^n$$

$$= Z \cdot \left\{ \frac{1 + i + \frac{1 \cdot \left(1 - \frac{1}{m}\right)}{1.2} \cdot i^2 + \text{etc.}}{1 + i} \right\}^n$$

$$= Z \cdot \left\{ 1 + \frac{\left(1 - \frac{1}{m}\right)}{1.2} \cdot i^2 + \text{etc.} \right\}^n$$ nearly, and neglecting the higher powers of i, which, as i is a decimal fraction of the order $\frac{1}{10^2}$, may be done when n is not very large, we have

$$Z_1 = Z \cdot \left\{ 1 + \frac{n\left(1 - \frac{1}{m}\right)}{1.2} \cdot i^2 \right\} \text{ nearly} \quad \ldots\ldots\ldots\ldots\ldots\ldots (1).$$

REMARK. The preceding equations contain all the formulæ necessary for the determination of any question, connected with the accumulation of a *single* sum from compound interest. Several results can be deduced from them, which are worthy of notice.

It is seen that the hypothesis of momentaneous interest considered in equation (4) introduces the base of the Napierian or Hyperbolic logarithms, which possesses many important properties. Although that hypothesis is not generally used, yet it gives rise to various theorems, which can be adapted with sufficient exactness to the actual conditions of practice.

9.—Equation (4) gives $Z = P \cdot e^{ni}$, $\therefore$ taking logarithms and denoting as before by Log_e the logarithm to the base e, we have

$$n \cdot i = \text{Log}_e\left(\frac{Z}{P}\right) \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (1).$$

$= $ a constant:

or, supposing interest realized momentaneously, † *Theorem* 2 arises:—*The product of the nominal yearly rate by the number of years, in which a sum* P *will amount to* Z, *is constant, or the same whatever be the rate of interest:* in other words, *If* P *amount to* Z *in* N_1 *years at* i_1 *per pound interest, then* P *would amount to* Z *in* $\frac{N_1 \cdot i_1}{i_2}$ *years at* i_2 *rate of interest, or in* q.N *years at* $\frac{i}{q}$ *rate of interest.*

Example: By Table 7, £1 will amount to £7·38906 in 50 years at 4 per cent. momentaneous rate of interest. Hence, £1 ought, by this theorem,

to amount to the same sum in $\frac{50 \times \cdot 04}{\cdot 08}$ years, or 25 years, at 8 per cent. momentaneous rate; which is also shown by Table 7 to be the case.

10.—Let $Z = f.P$ in equation (1), Art. 9, $\therefore n_f . i = \text{Log}_e f$

$$\therefore n_f = \frac{\text{Log}_e f}{i} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (2).$$

or, †*Theorem* 3:—*The number of years, in which, by the accumulation of momentaneous interest, a sum will become f-fold its original value, is equal to the Log.$_e$ f divided by the nominal yearly rate per pound.*

$$\text{If } f = 2, \qquad n_2 = \frac{\text{Log}_e 2}{i}$$

$$= \frac{.693147}{i} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (3).$$

See the extract from Tables of Hyperbolic Logarithms contained in Table 16.

$$\text{If } f = 3, \qquad n_3 = \frac{\text{Log}_e 3}{i}$$

$$= \frac{1.098612}{i} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (4).$$

And so on for other values of f.

If for i we put $\frac{I}{100}$, I being the interest per cent., we have,

from eq^n (3). *The number of years in which money will become doubled at* I *per cent. rate of interest realized momentaneously is equal to* 69·3147, *divided by the rate of interest* I.

from eq^n (4). *The number of years in which money will become trebled is equal to* 109·8612, *divided by the rate of interest.*

11.—*Respecting the Time of doubling at* yearly *interest.*

If in Equation (1), Art. 1, or $Z = P(1 + i)^n$ ..... (1)
we suppose $Z = 2P$, then $2 = (1 + i)^n$..... (2)
which shows that n cannot be an integer, as $(1 + i)$ is a fraction. But, as we have stated before, Art. 1, equation (1) can only be applied when n is an integer, hence it will not serve to determine the time of doubling when interest is paid *yearly*; nor can any equation do so, as, theoretically speaking, there can be no time of doubling for interest expressed by a commensurable fraction, and paid at the *end* of finite intervals.

Most writers have overlooked this consideration, and have erroneously given the values of n deduced from $n = \frac{\text{Log}_e 2}{\text{Log}_e (1 + i)}$ for various values of i, as being the corresponding times of doubling at yearly interest (see Table 8). This

amounts to supposing the money to accumulate *continuously* by a compound momentaneous interest $\text{Log}_e(1+i)$ throughout the whole time, in which on such an hypothesis it would double, instead of increasing as it does per saltum at the *end* of each year; or that the expressions $(1+i)^n = 2$ and $e^{n\,\text{Log}_e(1+i)} = 2$, which represent different hypotheses, are interchangeable.

The results thus obtained are therefore of no mathematical value, although they differ but little from those that might be deduced from the *commercial* view of the question, see Equation (2), Art. 3, which supposes a proportionate amount of the *yearly* rate of interest to be paid, when there is a fractional number of days over.

12.—When interest is payable m times a year, Equation (3) Art. 4 gives

$$Z = P\left(1+\frac{i}{m}\right)^{m.n}, \text{ where } m.n \text{ is an integer.}$$

$$\therefore \text{Log}_e \frac{Z}{P} = m.n.\text{Log}_e\left(1+\frac{i}{m}\right)$$

$$\text{Let } Z = f.P$$

then we may still assume the equation to hold approximately, whether $m.n$ remain an integer or not, provided the intervals of conversion of interest be frequent.

$$\therefore \quad m.n_f = \frac{\text{Log}_e f}{\text{Log}_e\left(1+\frac{i}{m}\right)} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (1).$$

$$= * \text{Log}_e f.\left\{\frac{1}{\left(\frac{i}{m}\right)} + \frac{1}{2} - \frac{i}{12m} + \frac{i^2}{24m^2} - \text{etc.}\right\}$$

---

* [The reciprocal of $\text{Log}_e(1+x)$ can in general be expanded in a series by the following method:—

$$\text{Let } \frac{x}{\text{Log}_e(1+x)} = a_0 + a_1 x + a_2 x^2 + \ldots\ldots\ldots + a_r x^r + \text{etc.}$$

$$\therefore \quad x = \left\{a_0 + a_1 x + a_2 x^2 + \ldots\ldots\right\}.\text{Log}_e(1+x)$$

$$= \left\{a_0 + a_1.x + a_2 x^2 + \ldots\ldots\right\}.\left\{x - \frac{x^2}{2} + \frac{x^3}{3} - \text{etc.}\right\}$$

$$= a_0 x + a_1 \left| \begin{array}{l} .x^2 + a_2 \\ -\frac{a_0}{2} \end{array} \right| \begin{array}{l} .x^3 + \ldots\ldots + a_r \\ -\frac{a_1}{2} \\ +\frac{a_0}{3} \end{array} \left| \begin{array}{l} -\frac{a_{r-1}}{2} \\ +\frac{a_{r-2}}{3} \\ \vdots \\ +\frac{(-1)^r.a_0}{r+1} \end{array} \right| .x^{r+1} + \text{etc.}$$

And when f is not very large we have with sufficient approximation, †*Theorem* 4 :—*The number of finite intervals of time (each equal to the mth part of a year), at the end of which money will accumulate to f-fold its original value, is*

$$= \frac{\text{Log}_e f}{\left(\frac{i}{m}\right)} + \frac{\text{Log}_e f}{2}$$

$$= \frac{\text{Log}_e f}{\text{rate of interest per pound in each interval}} + \frac{\text{Log}_e f}{2} \text{ nearly. } \ldots\ldots\ldots\ldots (2)$$

since i is a decimal of the 2d order, and the higher powers of $\frac{i}{m}$ may be neglected.

13.—Let $f = 2$ then $\text{Log}_e 2 = \cdot 693147$

$\therefore$ The number of intervals of time (equal to m^{th} part of a year) at the end of which money will double $= \dfrac{\cdot 693147}{\left(\frac{i}{m}\right)} + \cdot 3465$

$$= \frac{69\cdot 3147}{\text{rate of interest per cent. in each interval.}} + \cdot 3465 \text{ nearly. } \ldots (3)$$

Whence $a_0 = 1,\ a_1 = \frac{1}{2},\ a_2 = \frac{1}{4} - \frac{1}{3} = \frac{-1}{12},\ a_3 = \frac{1}{24},\ a_4 = \frac{-19}{720},$

and generally a_r is given by the equation

$$a_r - \frac{a_{r-1}}{2} + \frac{a_{r-2}}{3} - \ldots\ldots\ldots\ldots + \frac{(-1)^r}{r+1} = 0 \ \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (1).$$

$$\therefore \frac{x}{\text{Log}_e (1+x)} = 1 + \frac{x}{2} - \frac{x^2}{12} + \frac{x^3}{24} - \frac{19\,x^4}{720} + \text{etc.}$$

Whence $\dfrac{1}{\text{Log}_e (1+x)} = \dfrac{1}{x} + \dfrac{1}{2} - \dfrac{x}{12} + \dfrac{x^2}{24} - \dfrac{19\,x^3}{720} + \text{etc.} \ \ldots\ldots\ldots\ldots (2).$

When x is a fraction, as in the case of $x = i$ the rate of interest per pound, then the series converges rapidly.

Also if we substitute $\frac{1}{y}$ for x

$$\frac{1}{\text{Log}_e \left(1 + \frac{1}{y}\right)} = y + \frac{1}{2} - \frac{1}{12\,y} + \frac{1}{24\,y^2} - \frac{19}{720\,y^3} + \text{etc.} \ \ldots\ldots\ldots (3).$$

the formula given in the text and which we shall have occasion to make use of hereafter (*vide* note to Art. 16).

It will be noticed, by such of our readers as are familiar with the higher branches of analysis, that the coefficient a_r, as determined from equation (1), is equal to the value of the definite integral

$$\int_0^1 (-1)^{r-1} \frac{z\,(1-z)\,(2-z) \ldots\ldots\ldots (r-1-z)\,dz}{1\ .\ 2\ .\ 3 \ldots\ldots\ldots r}$$

where z is integrated between the limits $z = o$, and $z = 1$.]

14.—The results in Table 8, and Equation 3, show that, generally, as regards the *integral* part of the time of doubling, we may assume for the sake of memory, †*Theorem* 5, that the

$$\text{Time of doubling} = \frac{70}{\text{rate of interest per cent.}} \text{ nearly,}$$

70 being the whole number next above 69·3147.

Or, "*The number of years in which money will double itself at compound interest is, in round numbers, equal to that whole number, which is nearest to the quotient obtained on dividing* 70 *by the rate of interest per cent.*"

When i is greater than ·10, a higher dividend than 70 must be taken. In the generality of commercial operations, however, interest does not exceed 10 per cent., and this approximate rule will suffice for all practical purposes.

15.—In simple interest there is a corresponding property. If N = number of years in which a sum P will double itself at simple interest I per cent.

$$\begin{aligned} P + N.\frac{I.P}{100} &= 2P \\ \therefore \quad N.I &= 100 \\ \therefore \quad N &= \frac{100}{I}. \end{aligned}$$

16.—*On the Successive Stages of Accumulation of Capital.*

In Art. 12 we have deduced eq^n (2) a simple expression for the value of n_f, or the aggregate number of years that are required to make a single capital become f-fold its original magnitude; and Art. 14 affords an easy rule for memory when $f = 2$; we will now proceed to deduce an approximate relation between the additional number of years, or multiples of equal intervals of time, which are required to make a single capital P pass through the successive stages of accumulation, by compound interest, from 1-fold to 2-fold, from 2-fold to 3-fold,..... from f-fold to $(f + 1)$-fold.

And for this purpose let $\phi_i^{a_r}$ represent generally the process of accumulation, at interest (yearly, monthly, or momentaneous), by which the capital P passes from r-fold to $(r + 1)$-fold, we have

$$\begin{aligned} 2.P &= P.\phi_i^{a_1} & \therefore \quad a_1.\text{Log}_e\,\phi_i &= \text{Log}_e 2 \\ 3.P &= 2.P.\phi_i^{a_2} & \therefore \quad a_2.\text{Log}_e\,\phi_i &= \text{Log}_e \frac{3}{2} \\ &\vdots & &\vdots \\ (f+1).P &= f.P.\phi_i^{a_f} \therefore & a_f.\text{Log}_e\,\phi_i &= \text{Log}_e\left(1 + \frac{1}{f}\right) \end{aligned}$$

or the quantities $a_1, a_2 \ldots$ are to each other in the ratios of the logarithms $\text{Log}_e \frac{2}{1}, \text{Log}_e \frac{3}{2}, \ldots\ldots \text{Log}_e\left(1+\frac{1}{f}\right)$ respectively.

Hence the *Rates of Velocity* of arithmetical augmentation of capital are in the *inverse* ratios of those logarithms; or,

†*Theorem* 6 :—*If the specific velocity of* doubling *be represented by unity, the relative velocities of attaining successive units of capital would be represented by*

$$1, \frac{\text{Log}_e 2}{\text{Log}_e \frac{3}{2}}, \quad \frac{\text{Log}_e 2}{\text{Log}_e \frac{4}{3}}, \ldots\ldots\ldots\ldots\ldots \frac{\text{Log}_e 2}{\text{Log}_e\left(1+\frac{1}{f}\right)},$$

or by the logarithms of the number 2 taken to the successive bases $\frac{3}{2} \cdot \frac{4}{3}, \ldots\ldots\ldots \left(1+\frac{1}{f}\right)$, or,* very nearly by

1, 1.70, 2.40, 3.10, 3.80, etc.

which are the terms of an arithmetic progression of which the common difference is .70, a number which has already been used in Art. 14. (See forward, Section 4.)

Section II.

Of Present Value and Discount.

Art. 17.—When money is calculated at compound interest, the present value, or sum to be given at present, instead of a payment due at the end of a certain number of years, must be such that, if laid out at interest for that time, it would become equal to the amount due. The problem of determining

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* [These terms are obtained thus: by note to Art. 12

$$\frac{\text{Log}_e 2}{\text{Log}_e\left(1+\frac{1}{f}\right)} = .69315\left\{f + \frac{1}{2} - \frac{1}{12f} + \frac{1}{24f^2} - \text{etc.}\right\}$$

$$= \left\{\left[1+(f-1)\times .70\right] - \left[f \times .00685 - .04657 - \frac{.69315}{12f}\right] + \text{etc.}\right\}$$

$$= \left\{1+(f-1)\times .70\right\} \text{ nearly} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (1).$$

Unless f is very large, this formula gives a degree of approximation sufficiently accurate for the determination of *ratios*, and will nearly agree with the results derivable from the exact formula $\frac{\text{Log}_e 2}{\text{Log}_e\left(1+\frac{1}{f}\right)}$. The approximate results are in deficit, while f does not exceed 5, and in excess for subsequent values.]

the *present value* is consequently the inverse of finding the *amount*, to which a sum of money would accumulate at compound interest. The principles adduced in Section I. will apply here.

The discount on a given sum is the difference between its amount at the future time when it will be due and its present value.

Let $P =$ the present value,

$Z =$ the sum due at the end of n years (called the amount in Section I.)

$i =$ the yearly rate of interest per pound,

$d =$ the value of i if discounted or treated as due each year in advance,

$$= \frac{i}{1+i}$$

then P invested at compound interest i for n years must become equal to Z, ∴ by Art, 1,

$$Z = P \,.\, (1+i)^n$$

$$\therefore\ P = Z \,.\, (1+i)^{-n} \quad \ldots\ldots\ldots\ldots (1)$$

where n is an integer.

And if $D =$ the discount,

$$D = Z - P$$

$$= Z \,.\, \left\{1 - (1+i)^{-n}\right\} \ldots\ldots\ldots\ldots (2).$$

If the value of D be expanded by the Binomial Theorem,

$$D = Z \,.\, \left\{1 - \left[1 - n \,.\, i + \frac{n\,(n+1)}{1\,.\,2} \,.\, i^2 - \text{etc.}\ldots\right]\right\}$$

$$= Z \,.\, n i - \text{etc.}$$

showing that the common rule in practice of taking $D = Z \,.\, n \,.\, i$ is found by neglecting the other terms of the series.

If n be not a whole number, then equation (2) Art. 2, must be used.

18.—Since $P = \dfrac{Z}{(1+i)^n}$

if we have a table showing the amount $(1+i)^n$ to which £1 will accumulate in n years at compound interest, the present value of any sum Z due in n years will be equal to the quotient of Z divided by $(1+i)^n$.

Example: To find the present value of £30 due at the end of 5 years, supposing interest to be compound at 3 per cent.:—

Now Table 4 shows that the amount of £1 in 5 years at 3 per cent. is £1·1592.

$$\therefore \text{ the present value of £30} = \frac{30}{1{\cdot}1592} = \text{£}25{\cdot}8799\ldots$$

19.—If the interest, instead of being supposed payable only *once* a year, be payable, in m equal portions $\frac{i}{m}$, m times a year; then, as before,

$$Z = P.\left(1 + \frac{i}{m}\right)^{m.n}$$

$$\therefore P = Z.\left(1 + \frac{i}{m}\right)^{-m.n} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (3).$$

$$D = Z.\left\{1 - \left(1 + \frac{i}{m}\right)^{-m.n}\right\} \quad \ldots\ldots\ldots\ldots\ldots\ldots (4).$$

20.—If the interest be realized momently or $m = \infty$, then, by Art. 4,

$$Z = P.e^{n.i}$$

$$\therefore P = Z e^{-ni} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (5).$$

$$D = Z.\left(1 - e^{-n.i}\right) \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (6).$$

REMARK.—It will be observed, that the problems connected with *present values* differ from those relating to the *amount* of money by the introduction of $-n$ for. $+n$.

21.—Since $(1 + i)^{-n} = (1 + i)^{-n_1}(1 + i)^{-n_2}$

where $n = n_1 + n_2$, we have for present values a property corresponding to Theorem 1, Art. (5).

Theorem 7:—The present value of £1, due at the end of n years, is equal to the product of the present values of £1 due at the end of n_1 and n_2 years respectively.

Similarly where $n = n_1 + n_2 + n_3 +$ etc.

22.—From equation (3), Art, 19, it is obvious that

The present value is diminished by increasing the frequency of the intervals, in each year, at which the interest is supposed payable.

23.—If the present value P of a sum Z due n years hence be given by the tables, supposing interest payable *once* a year, the present value P_1 can be deduced when interest is payable m times a year.

$$\text{For } P_1 = Z.\left(1 + \frac{i}{m}\right)^{-m.n} = Z.\left(1 + i\right)^{-n}.\left\{\frac{\left(1 + \frac{i}{m}\right)^{m}}{1 + i}\right\}^{-n} \ldots (1).$$

$$= P \cdot \left\{ \frac{1 + m \cdot \frac{i}{m} + \frac{m \cdot (m-1)}{1 \cdot 2} \cdot \frac{i^2}{m^2} + \text{etc.} \ldots}{1 + i} \right\}^{-n}$$

$$= P \cdot \left\{ \frac{1 + i + \frac{1 \cdot \left(1 - \frac{1}{m}\right) \cdot i^2}{1 \cdot 2} + \text{etc.} \ldots\ldots}{1 + i} \right\}^{-n}$$

$$= P \cdot \left\{ 1 + \frac{\left(1 - \frac{1}{m}\right)}{1 \cdot 2} \cdot i^2 \right\}^{-n}$$ nearly, whence neglecting all powers of i above the second, which $\left(i \text{ being a decimal fraction of the order } \frac{1}{10^2}\right)$ may be done provided n be not very large.

$$P_1 = P \cdot \left\{ 1 - n \cdot \frac{\left(1 - \frac{1}{m}\right)}{1 \cdot 2} \cdot i^2 \right\} \text{ nearly} \ldots\ldots\ldots\ldots\ldots (2).$$

Example: Table 9 shows that, when interest is payable yearly, the present value P of £10 due 4 years hence at 5 per cent. is $= 8{\cdot}227$.

If interest be payable half-yearly, or $m = 2$, then from Equation (2)

$$n \cdot \frac{\left(1 - \frac{1}{m}\right)}{1 \cdot 2} \cdot i^2 = 4 \cdot \frac{\left(1 - \frac{1}{2}\right)}{2} \times ({\cdot}05)^2$$
$$= {\cdot}0025$$
$$\therefore P_1 = 8{\cdot}227\,(1 - {\cdot}0025)$$
$$= 8{\cdot}227 \times {\cdot}9975 = 8{\cdot}2064.$$

24.—Respecting the difference between the *present values* of the same sum Z due at the end of n years, according as it is calculated at compound interest i_1 per pound or i_2 per pound; or on *the mode of ascertaining the surplus profit in discounting bills, or shares, payable at a long date* :—

Let P_{i_1} = present value at the rate of interest i_1

P_{i_2} = ... do. ..... i_2

If interest be realized only *once* a year,

$$P_{i_1} - P_{i_2} = Z \cdot (1 + i_1)^{-n} - Z \cdot (1 + i_2)^{-n}$$
$$= Z \cdot \left\{(1 + i_1)^{-n} - (1 + i_2)^{-n}\right\} \ldots\ldots\ldots\ldots (1).$$

If interest be realized *m times* a year,

$$P_{i_1} - P_{i_2} = Z \cdot \left\{ \left(1 + \frac{i_1}{m}\right)^{-m \cdot n} - \left(1 + \frac{i_2}{m}\right)^{-m \cdot n} \right\} \ldots\ldots\ldots (2).$$

If interest be realized *momently*,

$$P_{i_1} - P_{i_2} = Z \cdot \left\{ e^{-n \cdot i_1} - e^{-n \cdot i_2} \right\} \ldots\ldots\ldots\ldots\ldots\ldots\ldots (3).$$

From these equations we have *Theorem* 8:—*That the difference between the present values of a sum of money Z due in n years, estimated at different rates of interest, increases up to a certain point with the value n of and then diminishes.*

For example, if one person A obtain a present loan P_{i_1} from another person B, in return for which he is to pay Z at the end of *a* years; and A, out of the money he has received, lend a sum P_{i_2} to a third party C, for which at the end of the *n* years he is also to receive Z, which will enable him to pay off his debt to B, then there is some value of *n*, such that the immediate profit derived by A is greatest if i_2 be greater than *i*. (*Vide* Sect. 4.)

[NOTE *to Art.* 24.—*When the interests are momentaneous, or the expression is a continuous function of the variable* n, *the maximum value can be determined at once by differentiation.*

Taking equation (3), let

$$u = \left\{ e^{-n i_1} - e^{-n i_2} \right\} = \text{a maximum.}$$

i_1 being less than i_2.

Differentiating with regard to *u*, we get by the property of *maxima et minima:* (see any Treatise on the Differential Calculus),

$$\frac{du}{dn} = -e^{-n i_1} \cdot i_1 + e^{-n i_2} \cdot i_2 = 0$$

$$\therefore \frac{e^{-n i_1}}{e^{-n i_2}} = \frac{i_2}{i_1}$$

$$\therefore e^{n(i_2 - i_1)} = \frac{i_2}{i_1}$$

$$n \cdot (i_2 - i_1) = \text{Log}_e\, i_2 - \text{Log}_e\, i_1$$

$$n = \frac{\text{Log}_e\, i_2 - \text{Log}_e\, i_1}{i_2 - i_1} \ldots\ldots\ldots\ldots\ldots\ldots\ldots (4).$$

To determine whether this result gives a maximum or minimum, we must differentiate a second time:

$$\therefore \frac{d^2 u}{d n^2} = e^{-n i_1} \cdot i_1^2 - e^{-n i_2} \cdot i_2^2$$

$$= -e^{-n i_2} \cdot i_2^2 \left\{ 1 - e^{n(i_2 - i_1)} \cdot \frac{i_1^2}{i_2^2} \right\}$$

$$= -e^{-n i_2} \cdot i_2^2 \left\{ 1 - \frac{i_2}{i_1} \cdot \frac{i_1^2}{i_2^2} \right\}$$

(by substituting in the bracket $\frac{i_2}{i_1}$ for $e^{n \cdot (i_2 - i_1)}$, as found above.)

$$= -e^{-n i_2} \cdot i_2 \left\{ i_2 - i_1 \right\},$$

which is *negative*, since i_1 was assumed to be less than i_2;

$\therefore$ the value of *n* in equation (4) gives the number of years, for which the difference of the present values is a maximum.

Example: Let $i_1 = \cdot 05 \qquad i_2 = \cdot 06.$

$$n = \frac{\text{Log}_e 6 - \text{Log}_e 5}{\dfrac{6-5}{100}}$$

$$= 100\,(\text{Log}_e 6 - \text{Log}_e 5)$$

$$= 100\,(1\cdot 791759 - 1\cdot 609438) \text{ see Table 16}$$

$$= 18\cdot 2321 \text{ years,}$$

That is to say, the difference, between the present values of the same sums discounted respectively at 5 and 6 per cent. momentaneous interest, is greatest, when they are due at the end of 18·2321 years.

The above process will not serve for *yearly* interest, as the function of n varies by *finite* yearly increments in the value of n, and Differentiation does not apply. The very definition of a differential co-efficient has, by a strange oversight, been overlooked by several skilful writers on Interest, who have, probably through want of consideration, applied the differential calculus. But the time may be deduced indirectly from equation (4) by substituting, for the *yearly* interest, the equivalent momentaneous rate.]

Section III.

On Annuities.

Art. 25.—To find the *amount* of a yearly annuity of £1, payable for n years, supposing compound yearly interest at i per pound.

Unless the contrary be mentioned, annuities are supposed payable at the *end* of each year; and on this hypothesis tables are usually constructed. It will hereafter be shown how such tables can be adapted to find the *amount* or *present value* of annuities payable at the *beginning* of each year or otherwise.

The reason for the analytical investigations in this section, proceeding on the supposition of the annuities being payable at the *end* of each year, or other interval of time, consists in the simplicity attending the reference of annuities to that Sum, which would purchase them, or to that of which the annuity is the Interest; as, in either case, whether it be purchased, or payable as interest, each instalment is due at the *end* of each year.

Let Σ_n be the symbol of the *amount* of an annuity of £1 for n years.

The expression can at once be found from that of the amount of a *single* sum £1. Art. 1.

For $(1+i)^n =$ the *amount* of a single sum £1 with yearly interest i per pound in n years.

$$= \text{the £1} + \text{amount of an annuity of £}i \text{ a year}$$

$$= 1 + i\,.\,\Sigma_n$$

$$\therefore\ \Sigma_n = \frac{(1+i)^n - 1}{i} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (1).$$

So that an Annuity Table can be calculated at once from a table, which gives the accumulation of a single sum and its compound interest for any time. (*Vide Table* 4.)

26.—Since $\Sigma_{n+1} = \dfrac{(1+i)^{n+1} - 1}{i}$

$$= \frac{(1+i)^n - 1}{i} + (1+i)^n$$

$$= \Sigma_n + (1+i)^n$$

$$\therefore \Sigma_{n+1} - \Sigma_n = (1+i)^n \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (2).$$

$$= \text{Amount of a single sum at interest in } n \text{ years.}$$

Hence, inversely, †*Theorem* 9 :—

A table of the amount of a single *sum can be deduced at once, if required, by taking the* first differences *of an Annuity Table.*

27.—To find the *present value* of a yearly annuity of £1 for n years, payable at the *end* of each year.

Let Φ_n = present value required.

By a simple demonstration, as in Art. 25, since the present value of £1 due in n years $= (1+i)^{-n}$

The present value of the periodic instalments of *interest* i on the £1 must alone $= 1 - (1+i)^{-n}$

(Since the diminution of value is produced by the interest deducted.)

$\therefore$ Dividing both sides by i

$$\Phi_n = \text{the present value of an annuity of £1} = \frac{1-(1+i)^{-n}}{i} \ldots (3)$$

And an *annuity* table of present values can be deduced at once from a given table of the present value of *single* sums.

28.—*Aliter* the present value of an annuity for n years is equal to the *amount* of the annuity at the end of n years discounted for that time.

$$\therefore \Phi_n = \frac{\Sigma_n}{(1+i)^n}$$

$$= \frac{1}{(1+i)^n} \cdot \left\{ \frac{(1+i)^n - 1}{i} \right\} \quad \text{(By Art. 25.)}$$

$$\therefore \Phi_n = \frac{1-(1+i)^{-n}}{i}, \text{ as before.}$$

$$^*\text{or } \frac{1}{\Phi_n} - \frac{1}{\Sigma_n} = i \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (4).$$

* [This equation presents a property, that may be made of great practical service, in deducing, without reference to tables, the *present value* of an annuity when the *amount* is known, or the converse. The operation can be performed with great facility by means of a table of the reciprocals of natural numbers. See also Section 4.]

Hence †*Theorem* 10.—*The difference between the* Reciprocals *of the* present value *and* amount *of an annuity of £1 is equal to the rate of* interest *allowed per pound.*

Example: The *present value* of an annuity of £11·72 a year for 10 years, at 3 per cent., is £100; then, if the *amount* were desired to be known at the end of 10 years, eq^n (4) would give it at once equal to $11{\cdot}464 \times 11{\cdot}72 = 134{\cdot}36$.

Again, eq^n (4) gives

$$\frac{1}{\Phi_{n-1}} - \frac{1}{\Phi_n} = \frac{1}{\Sigma_{n-1}} - \frac{1}{\Sigma_n} \quad \ldots\ldots\ldots\ldots\ldots\ldots (5)$$

or †*Theorem* 11:—*The difference of the reciprocals of the present values of an annuity for any two given periods of time is the same as that of the reciprocals of the corresponding annuity amounts for the same periods of time.*

29.—Since $\Phi_{n-1} = \dfrac{1-(1+i)^{-(n-1)}}{i}$

$$= \frac{1-(1+i).(1+i)^{-n}}{i}$$

$$= \frac{1-(1+i)^{-n}}{i} - (1+i)^{-n}$$

$$= \Phi_n - (1+i)^{-n}$$

$$\therefore (1+i)^{-n} = \Phi_n - \Phi_{n-1} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (6)$$

i. e. the present value of a *single* sum due in n years = the *difference* of the present values of an annuity of the same sum for n and $(n-1)$ years.

Whence, inversely, †*Theorem* 12:—*A table of present values for* single *sums can be deduced from a table of annuity present values by taking the first differences.*

30.—To determine the relations between the *amounts* of a yearly annuity of £1 for n years, according as it is payable at the *end* or at the *beginning* of each year.

Let Σ_n = the amount of annuity for n years, payable at the *end* of each year

and Σ'_n = the amount of annuity for n years, payable at the *beginning* of each year

then $\Sigma'_n = \Sigma_n(1+i) \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (1)$

or $\quad = \Sigma_{n+1} - 1 \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (2)$

This formula is important, as it enables the amount of yearly annuities, payable at the beginning of each year, to be determined from a Table for annuities payable at the end of each year.

31.—To determine the *present value* of an annuity of £1 a year for n years,

payable at the *beginning* of each year, from a Table of the present values of annuities payable at the *end* of each year,

Let Φ_{n-1} = the present value of an annuity for $(n-1)$ years, payable at the end of each year

and Φ_n' = the same for n years, payable at the beginning of each year

then $\Phi_n' = \Phi_n(1+i)$

or $= 1 + \Phi_{n-1}$

Example (see Table XI.); £4·5797 is the *present value* of £1 a year payable at the *end* of each year for 5 years, calculated at 3 per cent. rate of interest.

Therefore £5·5797 is the present value of £1 a year payable at the *beginning* of each year for 6 years.

32.—In the preceding propositions we have determined the amount and present value of annuities. We shall now proceed to examine the practical application of the formulæ.

A given sum Φ is borrowed for n years. To determine what annuity a, paid for that time in m equal portions $\frac{a}{m}$ every year, will pay off the principal and interest thereon also supposed due m times a year, $m.n$ being an integer.

$$*\text{Here } \Phi = \left(\frac{a}{m}\right) \cdot \frac{1 - \left(1 + \frac{i}{m}\right)^{-m.n}}{\left(\frac{i}{m}\right)},$$

$$\therefore \left(\frac{a}{m}\right) = \frac{\Phi \cdot \left(\frac{i}{m}\right)}{1 - \left(1 + \frac{i}{m}\right)^{-m.n}} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (1).$$

33.—Let the time n be such that the sum Φ, if unpaid, would accumulate at compound interest to f-fold its original value. See Art. 11.

$$\text{Then } f.\Phi = \Phi \cdot \left\{1 + \frac{i}{m}\right\}^{m.n}$$

$$\therefore \text{ From Art. 32 above, } \left(\frac{a}{m}\right) = \frac{f}{f-1} \cdot \Phi \cdot \left(\frac{i}{m}\right) \quad \ldots\ldots\ldots\ldots \quad (2).$$

$$\text{or, } a = \frac{f}{f-1} \cdot \Phi . i \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (3).$$

Hence, †*Theorem* 13:—*If a sum of money be borrowed for such a time, that, if unpaid, it would amount to f-fold its original value, then the*

* [This equation is obtained by substituting for a, i, and n, in equation (3), Art. 27, $\frac{a}{m}$, $\frac{i}{m}$, and $m.n$.]

annuity which would pay it off, principal and interest, in that time is equal to $\frac{f}{f-1}$ *times one year's interest on the debt.*

The accuracy of this theorem requires that the intervals, at which the instalments of the annuity are paid, should be aliquot parts of the whole period over which it extends. When the interval is small, as in the case of monthly payments, the formula (2) may be applied without reservation, and differs by an inappreciable quantity from the truth; and even for yearly payments the error in (3) is practically of no importance.

In proceeding to apply this theorem, we shall consider f as given, and equal to some whole number, in which case $m \cdot n$ is always fractional, but this circumstance, for the reasons above given, will not interfere with the practical accuracy of the solution.

34.—Let $f = 2$, or the time be that in which money would double at compound interest.—See Art. 11.

$\therefore$ From equation (3), Art. 33, the annuity $= 2\Phi \cdot i$

or, †*Theorem* 14:—*If a sum of money be borrowed for such a number of years, that if unpaid it would by yearly compound interest double itself, then the debtor can liquidate his debt with interest in that time by a yearly annuity equal to* twice *one year's interest on the sum borrowed; the last payment of the debtor being a fractional portion of the year's annuity proportionate to the fractional number of days.*

35.—If the payments be made monthly, as in Building Societies:

The monthly payment = twice the interest for one month.

Example 1.—In a 14 years' Building Society, calculated at 5 per cent. monthly rate of interest, the shares are £120, of which the present value is £60, because money doubles itself in nearly 14 years at 5 per cent.; to find the monthly payment $\frac{a}{12}$ for 14 years, which will pay off a debt of £60, including principal and interest thereon as it accrues,

$$\text{Here } \Phi = 60$$
$$i = \cdot 05$$
$$\frac{i}{12} = \frac{\cdot 05}{12}$$

$\therefore$ the monthly payment $\left(\frac{a}{12}\right) = 60 \times \frac{2i}{12} = £\cdot 5 = 10^{sh}$

That is to say, 10^{sh} a month for nearly 14 years will pay off a debt £60 borrowed at the beginning.

This explains the principle of those societies that charge 10^{sh} a month for that purpose.

Example 2.—In 10 years' Societies formed on a basis of 7 per cent.

As before, $\Phi = 60$, but $i = \cdot 07$.

$$\therefore \text{ the monthly payment } \left(\frac{a}{12}\right) = \Phi \times \frac{2i}{12}$$

$$= 60 \times \frac{\cdot 14}{12} = £\cdot 7$$

$$= 14^{sh}$$

Therefore a monthly payment of 14^{sh} for about 10 years will pay off the debt £60 with interest. Hence the charge of 14^{sh} a month in such Societies.

36.—The theorem in the preceding articles, which has been so investigated to bring forward certain points in the working of Benefit Building Societies, may also be proved thus, and put under another form.

If a single sum £1 accumulates in a certain time to £f,

Then the periodic interest i on the £1 has amounted to £$(f - 1)$,

(since it is by the interest that the result is produced).

$\therefore$ Dividing both sides by i, we have

†*Theorem* 15:—*The amount of an annuity of* £1, (*in the time in which a single sum becomes f-fold its original value*), *is*

$$= £\frac{f-1}{i}$$

$$= £\frac{100(f-1)}{\text{rate of interest per cent.}}$$

Ex. Let $f = 2$, then,

†*Theorem* 16:—*The amount of an annuity of* £1 *a year, in the* *exact *time in which a single sum would double itself, is equal to* $\frac{£100}{\text{rate per cent.}}$

37.—To determine the rate of interest at which a given annuity will amount to a given sum in a stated number of years:

$$\text{Since } \Sigma_n = a \cdot \left(\frac{(1+i)^n - 1}{i}\right)$$

$$\therefore (1+i)^n = \frac{\Sigma_n}{a} \cdot i + 1$$

No complete method has yet been discovered for solving this equation of the nth degree; several modes of approximation have, however, been given by various eminent writers on this subject, which serve to determine the value of i with great exactness, although they are rather complicated in their application. The formulæ are obtained by expanding $(1+i)^n$ by the Binomial theorem, and deducing a result, by neglecting terms involving powers of i

* [The reader will understand the word "*exact*" to mean the actual result given by the formula $\frac{\log_e 2}{\log_e (1+i)}$. *Vide* Art. 11.]

above the third. The following (suggested by the late Mr. Francis Baily) gives a near approximation:

$$\text{Let } D = \left\{ \frac{\Sigma_n}{a \,.\, n} \right\}^{\frac{2}{n-1}} - 1$$

$$\text{Then } i = \frac{\{12 + (n+1) \,.\, D\} \,.\, D}{12 + 2\,(n+1)\,D} \quad \ldots\ldots\ldots\ldots\ldots\ldots (1).$$

38.—To determine the value of i when the present value, the annuity, and the number of years are given.

The equation for solution is $\Phi_n = a \,.\, \frac{1 - (1+i)^{-n}}{i}$ which presents the same difficulty as that in Art. 37. A near approximate formula is:

$$i = \frac{\{12 - (n-1) \,.\, E\} \,.\, E}{12 - 2\,(n-1) \,.\, E} \quad \ldots\ldots\ldots\ldots\ldots\ldots (2).$$

$$\text{where } E = \left\{ \frac{a \,.\, n}{\Phi} \right\}^{\frac{2}{n+1}} - 1$$

39.—Let L be a present sum borrowed, and it be determined to set aside every year a certain Annuity a to repay principal and interest at the nominal yearly rate of i per pound: the balance of the debt or amount still due (B_x) at the end of x years is

$$B_x = L \,.\, (1+i)^x - a \,.\, \frac{(1+i)^x - 1}{i} \quad \ldots\ldots\ldots\ldots\ldots (3).$$

40.—Whence

$$(a - i \,.\, L) = (a - i \,.\, B_x) \,.\, (1+i)^{-x} \quad \ldots\ldots\ldots\ldots\ldots\ldots (4).$$

i. e. the difference *between the annuity* a *and one year's interest on the sum borrowed* L *is constantly equal to the* present value *of the* difference *between the said annuity and the interest on the balance of the debt at the end of any number of years.*

41.—For convenient use of tables, (3) may be put under the form

$$B_x = L \,.\, Z_x - a \,.\, \Sigma_x \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (5).$$

where Σ_x and Z_x are the accurate amounts at interest of an annuity of £1 and of a single sum of £1 respectively for x years.

42.—The progress of the decrease of a Loan is shown in r years after x

$$B_x - B_{x+r} = a \,.\, (\Sigma_{x+r} - \Sigma_x) - L \,.\, (Z_{x+r} - Z_x) \ldots\ldots\ldots (6).$$

which can be calculated at once from the Tables.

43.—To find a, the annuity that will pay off the loan in n years,

From (5) $B_n = 0$

$$\therefore \quad a = L \cdot \frac{Z_n}{\Sigma_n} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (7).$$

44.—To find n

In (4) making $B_n = 0$

$$(1+i)^{-n} = 1 - i \cdot \frac{L}{a}$$

$$n = -\frac{\log\left(1 - i \cdot \frac{L}{a}\right)}{\log(1+i)} \ldots\ldots\ldots\ldots\ldots (8).$$

Section IV.

Practical Considerations relating to Industrial Associations.

Art. 45.—In a permanent Building Society the Investors subscribe with the view of receiving, at the end of a given time, certain shares, which are equivalent to their payments, with compound yearly interest, after the rate of i per pound. The subscriptions are, however, lent to borrowers at i_1 per pound rate of interest, i_1 being greater than i. The payments of the Borrowers are made at the end of each year, so as to repay principal and interest in a given term of years, which is the same for all. To determine the advantage derived by the society by the yearly difference $(i_1 - i)$ in the rates of interest, or in other words, *what portion of the repayment income* may be annually written off as surplus profit.

Let a = the yearly income received in repayment of various loans amounting to Φ.

x = the annual profit.

n = the term of years for which Φ is lent.

$$\therefore \Phi = a \cdot \frac{1 - (1+i_1)^{-n}}{i_1}$$

Now at i per pound rate of interest $(a - x)$ would have been the annual repayment.

$$\therefore \Phi = (a - x)\frac{1 - (1+i)^{-n}}{i}$$

$$\therefore a \cdot \frac{i}{i_1} \cdot \frac{1 - (1+i_1)^{-n}}{1 - (1+i)^{-n}} = a - x$$

$$\therefore x = a \cdot \left\{1 - \frac{i}{i_1} \cdot \frac{1 - (1+i_1)^{-n}}{1 - (1+i)^{-n}}\right\} \ldots\ldots\ldots\ldots\ldots\ldots (1).$$

When the society lends for various periods, or different values of n, then x also varies; and the portion of the repayment income, which may be annually written off as profit, diminishes slowly as n increases, passes through a minimum, and then steadily increases. For the two rates 5 and 7 p.c. the minimum is upon a loan for thirteen years, at all other periods the difference is greater. In *the set of rules given by us for a permanent Building Society we recommend only a portion of the surplus income to be carried to the Management and Contingent Fund.

46.—A member borrows Φ for n years at $\frac{i_1}{12}$ per pound *monthly* rate of interest. This loan he is to repay by periodic instalments including principal and interest. To find the *difference* between the requisite payments according as they are annual or monthly.

If he pay *annually*, let a = annual payment.

monthly, $\frac{b}{12}$ = monthly payment.

$$\therefore \Phi = a \cdot \frac{1-(1+i_1)^{-n}}{i_1} \quad \ldots\ldots\ldots\ldots (1).$$

$$\text{Or, } \Phi = \frac{b}{12} \cdot \frac{1-\left(1+\frac{i_1}{12}\right)^{-12.n}}{\frac{i_1}{12}} \quad \ldots\ldots\ldots\ldots (2).$$

$$\therefore 0 = a \cdot \left\{1-(1+i_1)^{-n}\right\} - b\left\{1-\left(1+\frac{i_1}{12}\right)^{-12n}\right\}$$

$$\text{hence, } b = a \cdot \frac{1-(1+i_1)^{-n}}{1-\left(1+\frac{i_1}{12}\right)^{-12n}} \quad \ldots\ldots\ldots\ldots (3).$$

$$\therefore a - b = a \cdot \frac{(1+i_1)^{-n} - \left(1+\frac{i_1}{12}\right)^{-12n}}{1-\left(1+\frac{i_1}{12}\right)^{-12n}} \quad \ldots\ldots\ldots\ldots (4).$$

In the permanent society described in Part I. the repayments are calculated by equation (1). If it were practically possible to invest the money of the society every month as soon as received, then the value of b given by equation (2) would cover the repayment of the loan Φ with interest, and there would be a yearly gain, in the receipts, represented by $(a - b)$.

47.—To determine the excess of Accumulation obtained at the end of n

* [Although the repayment-difference passes through a minimum, the percentage of advantage shown by comparing the difference with the repayment is always increasing.]

years, by the receipt and immediate reinvestment of the monthly subscriptions at *monthly* interest after the rate of i_1 per pound; when the Investors are only promised the accumulation of their subscriptions, as if paid yearly and invested at compound yearly interest i per pound.

Let A = the amount at $\frac{i_1}{12}$ per pound monthly interest,

B = the amount at i per pound yearly interest,

$\frac{a}{12}$ = the monthly subscription,

$$\therefore A = \frac{a}{12} \cdot \left\{ \frac{\left(1 + \frac{i_1}{12}\right)^{12n} - 1}{\frac{i_1}{12}} \right\}$$

$$B = a \cdot \left\{ \frac{(1+i)^n - 1}{i} \right\}$$

$$A - B = a \cdot \left\{ \frac{\left(1 + \frac{i_1}{12}\right)^{12n} - 1}{i_1} - \frac{(1+i)^n - 1}{i} \right\} \quad \ldots\ldots\ldots (1).$$

48.—If the repayments of the Borrowers be deferred n_1 years, the annual instalment for n years next following, to liquidate the debt with the arrears of interest thereon, will be given by the equation

$$\Phi \cdot (1 + i_1)^{n_1} = a \cdot \frac{1 - (1 + i_1)^{-n}}{i_1}$$

$$\therefore \quad a = \Phi \cdot i_1 \cdot \frac{(1 + i_1)^{n_1 + n}}{(1 + i_1)^n - 1} \quad \ldots\ldots\ldots\ldots\ldots\ldots (2).$$

whence the values of n can be obtained with facility by means of one table, viz: Table 4.

49.—Note to page 32. On the adjustment of the amount of contribution per share to be paid by Borrowers in a terminating Building Society, as their quota towards making up a deficiency in the amount required at the epoch of its expected termination, in order to enable the Investors to receive their shares in full.

Let D = the deficiency,

m = number of Investors' (or unadvanced) shares,

f = total monthly income from subscriptions on the same,

g = total monthly income from Borrowers' repayments, where the payments on each share are not necessarily the same:—

Then:—1st. If the society's existence, and consequently the members' subscriptions, were continued for the purpose of making up D; as no new

Borrowers would be found, the money received must remain idle or be invested in the public funds.

Let x = number of extra months' subscription,

i = the *average* monthly interest obtained per pound,

and suppose the existing assets to produce, through interest, just sufficient income to cover the current office expenses during the extra months,

$$\therefore D = (f+g) \cdot \left\{ \frac{(1+i)^x - 1}{i} \right\}$$

$$\therefore (1+i)^x = 1 + \frac{Di}{f+g}$$

$$\therefore x = \frac{\text{Log.}\left(1 + \frac{Di}{f+g}\right)}{\text{Log.}(1+i)} \quad \ldots\ldots\ldots\ldots (1).$$

2ndly. If, instead of continuing the society for the additional months, the holders of unadvanced shares consent to waive their right to receive them in full, and be willing to put up with some loss, in order to receive whatever money they can at once; the Borrowers must contribute their share of the *present value* of D, or of

$$D(1+i)^{-x} = \frac{D}{1 + \frac{Di}{f+g}}$$

Hence the unit of contribution from all members, both Investors and Borrowers, will be

$$\frac{1}{f+g} \cdot \left(\frac{D}{1 + \frac{Di}{f+g}} \right) = \frac{D}{(f+g) + Di}$$

And the Borrowers must contribute g units, or a sum

$$= \frac{Dg}{(f+g) + D.i} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots (2).$$

of which each Borrower contributes respectively in proportion to his units of monthly repayment to the society on his loan.

The remaining loss on each Investor's share will be

$$\frac{D}{m} \cdot \left\{ 1 - \frac{g}{(f+g) + Di} \cdot \right\} \quad \ldots\ldots\ldots\ldots\ldots\ldots (3).$$

50.—If a *valuation* be made prior to a deficiency being discovered, and it be sought to ascertain the probable future duration of the association, then

If A = clear cash assets over and above outstanding debts, accounts, loans due to bankers, etc.

e = average monthly expense that may be expected,

x = number of future months' duration,

s = amount of each investing share,

$$m.s = \mathrm{A}.\left\{1+i\right\}^x + \left\{f+g-e\right\}\frac{(1+i)^x-1}{i} \quad .. (4).$$

$$\therefore (1+i)^x = \frac{i.m.s. + (f+g-e)}{\mathrm{A}.i + (f+g-e)}$$

$$\therefore \quad x = \frac{\mathrm{Log.}\left\{1 + \frac{i.(m.s-\mathrm{A})}{\mathrm{A}.i+(f+g-e)}\right\}}{\mathrm{Log.}\ (1+i)} \quad \ldots\ldots\ldots\ldots (5).$$

This equation is very simple in application, and depends on only one assumption respecting the future, viz. That a rate of monthly interest i per pound may be counted upon to the very end of the association. The practical judgment of the Actuary will know how to modify it when required.

51.—If no interest be expected to be realized, the result would be obtained either directly,

or by putting $i = 0$ in equation (4)

$$\therefore \quad m.s = \mathrm{A}.1^x + \left\{f+g-e\right\}\frac{1^x-1}{0}$$

$$= \mathrm{A} + \left\{f+g-e\right\}.\frac{0}{0} \quad \ldots\ldots\ldots\ldots\ldots\ldots (6).$$

To determine the limiting value of the fraction $\frac{0}{0}$ to which $\frac{(1+i)^x-1}{i}$ is equal when $i = 0$, we must expand, or differentiate. Whence

$$^*\mathrm{Limit}\left\{\frac{(1+i)^x-1}{i}\right\}_{i=0} = \mathrm{Limit}\left\{\frac{x.(1+i)^{x-1}}{1}\right\}_{i=0} = x$$

Hence substituting in equation (6) and reducing we have

$$x = \frac{m.s-\mathrm{A}}{f+g-e} \quad \ldots\ldots\ldots\ldots\ldots\ldots (7).$$

52.—In framing the *Liability and Asset* account set forth at page 63, Part I., care must be taken to avoid giving an erroneous estimate of the present value of the mortgages. The difficulty consists in the circumstance, that their present value is greater, in favour of the society, the less the rate of interest assumed in discounting the repayments which they produce. The best way is to discount at the higher rate of interest i_1, which is charged fundamentally from Borrowers. But it will be necessary to add a caution to the Managers, that the smaller present value, thus afforded in the making up of the society's assets, is merely the result of a proper precaution to avoid pro-

* [Or thus, expanding by the Binomial Theorem—

$$\frac{(1+i)^x-1}{i} = \frac{1+xi+\frac{x(x-1)}{1.2}i^2+\text{etc.}-1}{i} = x + \frac{x(x-1)}{1.2}i + \text{etc.} = x \text{ when } i=0.]$$

ducing a fictitious amount of present profit, and that Redemptions should not be allowed upon such terms.

53.—*As to Paid-up Shares.*—In calculating the single payment Φ_n to be required from a member in place of the monthly subscription for n years, the present value of the monthly annuity should be discounted at a lower rate of interest i_2 than that which the investors are credited with towards the realization of their shares, and the payment should be treated as due at the beginning of each half year, as a half-yearly annuity.

If $\frac{a}{12}$ = the monthly subscription,

$$\Phi_n = \frac{a}{2} \cdot \left\{ 1 + \frac{1 - \left(1 + \frac{i_2}{2}\right)^{-(2n-1)}}{\frac{i_2}{2}} \right\} \ldots\ldots\ldots\ldots (1).$$

Sometimes the societies, instead of using this formula, content themselves with discounting the *share* (s) itself (when it is proposed to pay it up) at i_2 interest, and not the monthly payments. This is not just when i_2 is $< i$, because although the member paying up his share should only receive discount, after i_2 interest, for the time which would elapse before his subscription become due, yet he should be credited with the higher rate afterwards. In other words, Managers use the formula:

$$\text{Single payment} = \frac{s}{(1 + i_2)^n}$$

instead of the equitable one given by (1), viz.:

$$\frac{1}{2} \cdot \frac{s\,i}{(1+i)^n - 1} \cdot \left\{ 1 + \frac{1 - \left(1 + \frac{i_2}{2}\right)^{-(2n-1)}}{\frac{i_2}{2}} \right\} \ldots\ldots\ldots (2).$$

which is just as easy to use, since a is already known.

We have said that i_2 should be always $< i$, for which see Art. 93, Part I. it will also be regulated by the consideration as to how far Paid-up Shares are to participate in any surplus expenses or losses, over and above the management and contingent fund, that may afterwards be discovered. Occasionally an arrangement is made, that, while partaking of the profits, they shall not be called upon to contribute to any excess of expenses or losses. This is a matter of arrangement, according to circumstances. It will, perhaps, in general suit the purposes of a society to covenant that a member paying up the whole of his shares shall be required, in case of future loss, to contribute after a rate proportional to *half* the number of years for which he has paid up.

Too frequently the Managers are willing to discount at the higher rate i, which is taking the other extreme, and would be depriving the society of

proper margin, or they charge $\frac{s}{(1+i)^n}$. The correct principle, however, is to adopt the formula (2), which is a value between the two extremes, $\frac{s}{(1+i_2)^n}$ and $\frac{s}{(1+i)^n}$.

In reference to this Article, the reader should consider Art. 24, which contains an interesting point in the operations of discounting shares.

54.—*As to Withdrawals of unadvanced Shares.*—The rate of interest allowed on withdrawals should increase with the number of years' subscriptions paid.

Let a = one year's subscription,
n = number of years in which the shares are realizable,
i = the rate of interest, at which the subscriptions are credited, on the average, so as to amount to a share s in n years.

Let no interest be allowed on withdrawal until the end of the second year, when it shall be at the rate of $\frac{i}{n-1}$ per pound per annum, and let the interest allowed per annum ascend by equal differences, until it becomes i per pound, at the end of the last year for which the subscriptions are payable. Then the amount, that might be paid to any member withdrawing at the close of the rth year, would be represented generally by

$$W_r = a \cdot \frac{\left(1 + \frac{r-1}{n-1} i\right)^r - 1}{\left(\frac{r-1}{n-1}\right) \cdot i}$$

and by giving to r the values 1, 2,.... n, a table of withdrawals would be formed from the corresponding values of $W_1\ W_2 \ldots W_n$. It will be noticed that W_n must be $= s$, and that W_1 is a fraction of the form $\frac{0}{0}$, but that expression reduces itself to $W_1 = a$, on expanding, or differentiating by the rule usual in such cases. *Vide* Art. 51.

55.—*As to the apportionment of any surplus profit, expenses, or losses,* which may be ascertained to exist after a periodic *valuation of the society's affairs,* at the end of any number of years n. In the cases of expenses or losses, it would be supposed that they exceed the *management and contingent fund* and so leave a margin to be made up by the holders of unadvanced shares.

Let ψ = the surplus profit or loss to be divided.
m_1 = number of existing unadvanced shares which were issued in the *first* year, or counted as of n years' standing.

m_2 = number of existing unadvanced shares which were issued in the *second* year, or counted as of $(n - 1)$ years' standing.

m_n = number of existing unadvanced shares which were issued in the nth year, or counted as of 1 year's standing.

In which are included the paid-up shares (see preceding article).

Then the aggregate units, among which the apportionment is to be made, are

$$= n \,.\, m_1 + (n - 1) \,.\, m_2 + (n - 2) \,.\, m_3 + \ldots + 2 \,.\, m_{n-1} + m_n.$$

The standard unit $U_1 = \dfrac{\psi}{n \,.\, m_1 + (n - 1) \,.\, m_2 + \ldots + 2 \,.\, m_{n-1} + m_n}$.

So that a share taken out in the rth year, or of $(n - r + 1)$ year's standing, has a right to receive in the way of profit, or is bound to contribute if it be loss that is apportioned, a sum

$$= (n - r + 1) \,.\, U_1 \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (1).$$

Ex.: Let Ψ = £27 : 10*s*. surplus profit.

$n = 3$

$m_1 = 125$

$m_2 = 50$

$m_3 = 75$

Then U_1 = £·05 or 1sh

or the shares issued in the first year are entitled to 3*s*. per share, those in the second year to 2*s*., and those in the third to 1*s*.

If the apportionment be so made, as to have relation to the interest which the member is supposed to have acquired in the society, or to the then value of his shares, on the principle adopted in many *Life assurance offices*, the standard unit would become

$$U_2 = \frac{\psi}{m_1 \,.\, A_n + m_2 \,.\, A_{n-1} + \ldots\ldots + m_{n-1} \,.\, A_2 + m_n} \ldots (2).$$

Where $A_r = \dfrac{(1 + i)^r - 1}{i}$ generally.

The past payments being treated as made at the *end* of each year, and improved at i per pound interest (see Arts. 48 and 59, part 1). Hence a share taken out in the rth year would bear $A_{n+1-r} \,.\, U_2$ as its apportionment. Such a mode of calculating, at all events, the division of surplus profits, would, perhaps, be very *desirable*, as it would correspond to the principle of accumulation by which the unadvanced shares themselves are realised; but it would involve such an amount of trouble and consequently expense in the calculation, that it would be injudicious for any industrial association to incur it.

NOTE to Art. 64, Part 1. *On the Contributions to be required from Borrowers towards the Management and Contingent Fund.*

56.—The rate can be determined by the following considerations:—

In the article referred to it has been sufficiently explained, that a fund must be formed to provide for unforeseen contingencies, which occur in Building and other similar institutions, and entail pecuniary loss, either through some investments turning out to have been made upon bad security, or by the legal and other expenses incurred in seeking the recovery of the unliquidated amount due by a borrower. The probability of loss does not arise from any inherent defect in the security itself usually accepted by these associations, but rather in the want of sufficient skill on the part of the officers (who are employed to estimate its value or its goodness in a legal point of view), or of proper attention in watching, afterwards, that the mortgagor does not in any way infringe the covenants which are involved in the *tenure* of the property. As, however, in the settling of the rules or deed of constitution, care must be taken that the investors (or those members who supply the money for advances) may not be unprotected in case of such error in judgment or inattention; and as, from the restricted means of the peculiar class from which the borrowers usually proceed, comparatively little, if any, protecting margin can be preserved between the saleable value of the property and the sum lent by the society, it is clear that an equitably adjusted contribution must be required, by way of commission or otherwise, from each borrower, that a Management and Contingent Fund may be formed with it, to which would be added the difference in the rates of interest referred to in Art. 58, Part 1; so that, on the average of investments, no positive deficiency of money may arise in the assets of the association.

If all the loans were of equal magnitude, the rate per cent. could be adjusted by the results of the past experience of other similar institutions; but the case in practice is one of advances of every variety in amount within given limits; and the contingency of pecuniary loss is not dependent upon the *Amount* of the advance, but is rather a function of human skill, experience and attention; hence, when a borrower seeks for an advance exceeding the magnitude of the majority of the loans for which a rate of contribution has already been settled, he entails, with an *equal chance* of loss, greater *money risk;* and he must pay to the contingent fund somewhat more than after the rate per cent. for smaller loans. For example: suppose that the majority of the advances are to the extent of £100, and the proper percentage on each were £1, then for special loans of £200 or £300 a higher contribution than £2 or £3 would be requisite; since, in the event of that individual security, upon which the larger sum is advanced, becoming a source of loss, there would not be sufficient money supplied by the other loans to make it up. For further illustration: let £10,000 be advanced, not in 100 loans of £100, but in 98 of that amount and one of £200; if the rate from all of the contingent contributions were one per cent., the £100 thus received would be sufficient only in case of loss arising from one of the 98 loans, consequently the rate for

the £200 should be so adjusted that the society may be paid, for speculating to its extent, in a rate proportioned to the money risk.

Instead of deducing a scale from the law of probabilities, based upon a fundamental assumption for the average of loans, we propose to meet the necessity of a fund, and to diminish the pressure upon the borrowers, by availing ourselves of the consideration that, as the society is essentially established to benefit both classes of its members by the operations of compound interest, and as its duration is of unlimited extent, the indemnity rate upon a loan, say, = f. A, may with propriety be proportioned to the restorative power of compound interest; or, upon each successive unit A of the capital advanced, the contribution may bear a relation to the *velocities* of *arithmetical augmentation*, by which a single capital A passes through the successive stages of accumulation from one-fold to two-fold, two-fold to three-fold, and so on, of its original magnitude; since it is thus that can be measured very accurately the advantage derived by a borrowing member, in being enabled to commute his otherwise unproductive *rent* payments to a landlord into the purchase-money of valuable property, which is all the more profitable to him, that the original payments converted are larger. Hence, referring to Art. 16, the commission upon advances should be proportioned to the quantities represented by $\frac{\text{Log. } 2}{\text{Log.}\left(1+\frac{1}{f}\right)}$ for successive values of f, in this manner, viz.:

Let the commission on a sum of £L, supposed to be the general amount of loans, be $= c$, then, upon a loan of 2 L, it should be $= c$ upon the first unit L, and $c \cdot \frac{\text{Log. } 2}{\text{Log. } \frac{3}{2}}$ upon the *second* L, or together,

$$= c \cdot \left\{ 1 + \frac{\text{Log. } 2}{\text{Log. } \frac{3}{2}} \right\}$$

Again, upon a loan of 3 L, it would be $c \cdot \left\{ 1 + \frac{\text{Log. } 2}{\text{Log. } \frac{3}{2}} \right\}$ upon 2 L, and $c \cdot \left\{ \frac{\text{Log. } 2}{\text{Log. } \frac{4}{3}} \right\}$ upon the 3rd L; or upon the whole 3 L the commission should be $= c \cdot \left\{ 1 + \frac{\text{Log. } 2}{\text{Log. } \frac{3}{2}} + \frac{\text{Log. } 2}{\text{Log. } \frac{4}{3}} \right\}$. And generally, upon a loan of

f. L, the commission should be

$$= c.\left\{1 + \frac{\text{Log. } 2}{\text{Log. } \frac{3}{2}} + \frac{\text{Log. } 2}{\text{Log. } \frac{4}{3}} + \ldots + \frac{\text{Log. } 2}{\text{Log.}\left(1 + \frac{1}{f}\right)}\right\}$$

$$= c.f\left\{1 + \frac{\cdot 70}{2}(f - 1)\right\} \text{ nearly} \ldots \text{ see note } (a) \ldots\ldots\ldots\ldots (1).$$

when f is an integer.

[(*a*) The remarkable logarithmic series, from which this result is deduced, can only be summed with difficulty when the number of terms is considerable; as it requires transformations similar to those by which the summation of logarithms of numbers in arithmetic progression is effected, such as in the case of the Eulerian integral usually designated by the letter Γ. The process depends upon the well-known formula for integrating the function u_x: viz.

$$\Sigma u_x = \int u_x\, dx - \frac{u_x}{2} + \frac{B_1}{1.2} \cdot \frac{d u_x}{d x} - \frac{B_3}{1.2.3.4} \cdot \frac{d^2 u_x}{d x^3} + \ldots\ldots$$

$$+ (-1)^{n+1} \cdot \frac{B_{2n-1}}{1.2.3\ldots.(2n)} \cdot \frac{d^{2n-1} u_x}{d x^{2n-1}} + \text{etc.}$$

where $B_1, B_3, \ldots. B^{2n-1}$ are Bernoulli's numbers equal to $\frac{1}{6}, \frac{1}{30}, \frac{1}{42}, \ldots.$

$$(-1)^{n+1} \cdot \left(\frac{\log_e (1 + \Delta)}{\Delta} - 1\right) . O^{2n}.$$

Putting $N_f = \frac{1}{\text{Log. } 2} + \frac{1}{\text{Log. } \frac{3}{2}} + \frac{1}{\text{Log. } \frac{4}{3}} + \ldots. + \frac{1}{\text{Log.}\left(1 + \frac{1}{f}\right)}$

we can deduce $N_f = \frac{f^2}{2} + f - \frac{\text{Log. } f}{12} - C - \frac{1}{12f} + \frac{31}{720 f^2} + \text{etc.} \ldots\ldots (2)$

in which the numerical calculation gives $C = \cdot 00063$.

Hence, referring to the text,

$$N_f . \text{Log. } 2 = f\left(\frac{f}{2} + 1\right) . 693147 \text{ nearly.}$$

$$= f\left\{f \times .34657 + .693147\right\}$$

$$= f\left\{1 + .03972 + (f - 1) \times .34657\right\}$$

$$= f\left\{1 + \frac{\cdot 70}{2}(f - 1)\right\} \text{ very nearly.}$$

This arithmetic progression holds up to $f = 21$ within several thousandth parts of unity; and for all practical purposes the terms of N_f after the first two may be neglected. *The same approximate result might have been obtained from equation* (1), *note to Art.* 16.

It will be noticed that (2) gives for N_f or the summation of the *reciprocals* of logarithms of the form log. $\left(1 + \frac{1}{f}\right)$ a series, one part increasing with f, the other decreasing, analogous in form to the *Sum* of log. f = Log. $(1.2.3\ldots.f.)$

$$= \text{Log. } \sqrt{2\pi} + \left(f + \frac{1}{2}\right) \text{Log. } f - f + \frac{1}{12f} - \frac{2}{720} \cdot \frac{1}{f^3} + \text{etc.}]$$

Remark.—In this Equation f is treated as an integer, but the application can be modified without difficulty to calculate the deduction on advances not multiples of L.

57.—If it be desired to create an annual income to the fund, and the probable amount of loan business each year be ascertained, an equation can at once be deduced for determining the proper value of c to start with.

58.—In general, although c is deducted at once from the advance L, it is made to depend upon the duration of the mortgage, or it is taken $= n \,.\, k \,.\, \mathrm{L}$, when the loan is for n years (k being a fraction).

Example: Let $k \,.\, \mathrm{L} = 4^{\text{th}}$ per annum upon a loan $\mathrm{L} = £200$, granted for ten years, or the commission be £1 per cent. upon advances of £200, then the deduction upon a loan of £600 for ten years would, by equation (1), be $= £2 \times 3 \,.\left\{ 1 + \frac{\cdot 70}{2} \,.\, 2 \right\} = £10{\cdot}2$ or £10 : 4*s.*, which is £1 : 14*s.* per cent. on the £600 loan.

The Deposit System.

Respecting Single Deposits.

59.—To extend the operations and benefits of Industrial Associations, Sums of money might be received as deposits for a nominal period of years at interest, with power of withdrawal on demand, or with very short notice, of a portion thereof. Such a system would afford to the depositors the usual convenience of the savings banks in respect to the withdrawal of their money, while they would obtain the advantages of a much more remunerative interest, provided the agreement were, that the interest already *due* upon any portion withdrawn (if that should happen) should remain over with the rest of the deposit as an investment to be received at the expiration of the originally agreed term of years. On such an hypothesis, the *withdrawable* part of the principal should be considered as producing a less periodic rate of interest than both the other part of the deposit and the general instalments of interest themselves do when reinvested; or it should be treated as laid out in readily convertible securities, such as the public funds, exchequer bills, etc., which produce but a moderate rate of interest. The remainder of the deposit, and the instalments of *interest* from time to time accruing on the withdrawable portion (not being liable to unexpected demand) can be laid out in much less available security, such as mortgages on land or houses at a higher rate of interest, or in fact they might be engaged in the society's operations. For example, if

£10,000 were the amount of numerous deposits on such terms for an agreed period, and £2000 were withdrawable on demand, that sum should be invested in ready security, say at 2½ or 3 per cent., and the remaining £8000 in more lucrative investments at 5 per cent., or even more, with the periodic annuity instalments of £50 or £60 a year on the £2000, as from time to time they come in.

60.—*We have said that the right of withdrawal might be on demand, as the floating income of the society would much exceed, under ordinary circumstances, the average amount of applications.* A power, nevertheless, could and should be reserved to the committee of management or directors, to *suspend withdrawal payments*, if an unexpected pressure caused too great inconvenience or menaced the stability of the society. As the institution would be based upon principles of co-operative mutuality, such a power would be strictly equitable.

61.—Let Z_n = the amount payable in return for a deposit P, if invested and not withdrawn for n years.

$\frac{P}{m}$ = the portion which may, if required, be withdrawn on demand.

i' = the rate of interest at which $\frac{P}{m}$ is invested.

i = a higher rate, at which $\frac{m-1}{m}$. P, and the periodic instalments $\frac{P \cdot i'}{m}$ of interest at i' per pound on $\frac{P}{m}$, can be invested during the n years.

Then it is plain that Z_n is the amount of P at i per pound for n years, less the amount of a small annuity $\frac{P}{m} \cdot (i - i')$, accumulated at i interest, arising from the lower rate at which $\frac{P}{m}$ is invested, or

$$Z_n = P \cdot \left\{ (1+i)^n - \left(\frac{i-i'}{m}\right) \cdot \frac{(1+i)^n - 1}{i} \right\} \ldots\ldots (1).$$

This equation contains results afforded by known tables such as those at the end of this work, so that a single deposit table can be readily calculated.

An identical result, but in another form, might be obtained by a different mode of reasoning, in which

$$Z_n = \frac{P}{m} \cdot \left\{ \left[m - 1 + \frac{i'}{i} \right] \cdot (1+i)^n + 1 - \frac{i'}{i} \right\} \ldots\ldots (2).$$

62.—Let the *whole* be withdrawable on demand, then $m = 1$ in equation (1) or (2),

$$\therefore\ Z'_n = P \cdot \left\{ (1+i)^n - (i-i') \cdot \frac{(1+i)^n - 1}{i} \right\} \ldots\ldots (3).$$

or

$$Z'_n = P \cdot \left\{ 1 + i' \cdot \frac{(1+i)^n - 1}{i} \right\} \ldots\ldots\ldots\ldots\ldots\ldots (4).$$

63. Let the mth part of P not be withdrawable for μ years, which is the more general case, $n > \mu$, then

$$Z_{n \mid \mu} = P \left\{ (1+i)^n - \left(\frac{i-i'}{m}\right) \cdot \frac{(1+i)^{n-\mu} - 1}{i} \right\} \ldots\ldots (5).$$

In practice, μ might be taken with advantage equal to 3.

Example:—Let £10,000 be deposited for 10 years with the understanding that, after 3 years, £2000 may be withdrawn on demand.—Let 3 per cent. be the annual rate of interest allowed upon the £2000, and 5 per cent. be that upon the £8000, and upon the annuity £60 a year.—Then by eq^n (5),

$$Z_{10 \mid 3} = 10{,}000 \cdot \left\{ (1{\cdot}05)^{10} - \frac{{\cdot}02}{5} \cdot \frac{(1{\cdot}05)^7 - 1}{{\cdot}05} \right\}$$
$$= 10{,}000 \{ 1{\cdot}6288 - {\cdot}\,004 \times 8{\cdot}142 \}$$
$$= £15{,}962. \qquad \text{(See Tables 4 and 10).}$$

64.—To determine a relation between Z_p and Z_q, any two terms in Art. 61, $p < q$.

Then, referring to the mode of investment,

$$Z_q = Z_p \cdot (1+i)^{q-p} - \frac{P}{m} \cdot (i - i') \cdot \frac{(1+i)^{q-p} - 1}{i} \ldots (6).$$

If $q = p + 1$, the relation between the successive terms is given by

$$Z_{p+1} = Z_p \cdot (1+i) - \frac{P}{m} \cdot (i - i') \ldots\ldots\ldots\ldots\ldots (7).$$

a form suitable for the calculation of the table.

65.—Referring to Art. 63, to determine a relation between two terms, $Z_{p \mid \mu}$ and $Z_{q \mid \mu}$, where p and q are both greater than μ.

Since the μ years have elapsed, the relation will be identical in form with that (6) of the preceding article, or

$$Z_{q \mid \mu} = Z_{p \mid \mu} \cdot (1+i)^{q-p} - \frac{P}{m} \cdot (i - i') \cdot \frac{(1+i)^{q-p} - 1}{i} \ldots (8).$$

Let $q = p + 1$.

$$\therefore\ Z_{p+1 \mid \mu} = Z_{p \mid \mu} \cdot (1+i) - \frac{P}{m} \cdot (i - i') \ldots\ldots\ldots\ldots (9).$$

66.—The case where p is $< \mu$ and $q > \mu$ need not be considered, as the

formula would be of no advantage in constructing a table.—Until $p > \mu$ the equation will be simply $Z_p = P(1 + i)^p$; after which equation (9) will serve.

67.—To determine in Art. 63 the remainder of the depositor's claim to be received at the end of the n years, if he withdraw $\frac{P}{m}$ when n_1 years ($n_1 < n$) have just expired.

As by the agreement n_1 must be greater than μ, the effect produced by the withdrawal of $\frac{P}{m}$ in reduction of the original amount $Z_{n \mid \mu}$ will be equal to that amount, which by equation (4) $\frac{P}{m}$ would produce if deposited, for withdrawal on demand, for $(n - n_1)$ years.

$$\therefore \left.\begin{array}{l}\text{The remainder}\\ \text{of the claim}\end{array}\right\} = Z_{n \mid \mu} - \frac{1}{m} \cdot Z'_{(n-n_1)} \quad \ldots\ldots\ldots\ldots (10).$$

A simple formula to ascertain the outstanding liabilities of the society upon those deposit shares of which a portion $\frac{P}{m}$ has been withdrawn.

If the Table represented by Z'_n should not be ready at hand,

$$\left.\begin{array}{l}\text{The remainder of}\\ \text{the claim may}\\ \text{be calculated as}\end{array}\right\} = \left[Z_{n_1 \mid \mu} - \frac{P}{m}\right] \cdot (1 + i)^{n-n_1} \ldots\ldots (11).$$

68. Again, Art. 63, suppose that the m_1^{th} part only be withdrawn after n_1 years, where m_1 is $> m$; then the *Remainder of claim* as regards eq^n (10) will still be of the same form, viz.

$$Z_{n \mid \mu} - \frac{1}{m_1} \cdot Z'_{(n-n_1)}$$

But, in respect to eq^n (11), it would be represented by the expression

$$\left[Z_{n_1 \mid \mu} - \frac{P}{m_1}\right] \cdot (1 + i)^{n-n_1} - P \cdot \frac{m_1 - m}{m \cdot m_1} \cdot (i - i') \cdot \frac{(1 + i)^{n-n_1} - 1}{i} \ldots (12).$$

Where $Z_{n_1 \mid \mu}$ is a value given by the table used by the society to calculate $Z_{n \mid \mu}$, and the expression is deduced by considering, according to eq^n (1), that $Z_{n_1 \mid \mu} - \frac{P}{m_1}$, is a sum of money invested for $(n - n_1)$ years, with the understanding that a portion of it, equal to $\left(\frac{P}{m} - \frac{P}{m_1}\right)$, shall be withdrawable on demand.

If the withdrawal, in the preceding articles, take place in the course of any year, and not exactly at the end thereof, the preceding results would require to be modified with an allowance of simple interest for the fractional part of a year.

Annuity Deposits.

69.—Instead of a single deposit, as in Art. 63, let the contract be for a series of periodic deposits, each equal to P, during the n years, with the understanding that, after μ years have passed, the mth part of the aggregate deposits invested may be withdrawn on demand, the remainder of the claim standing over to the end of the term. Then, representing by $\Sigma_{n\,|\,\mu}$ the amount to which, if not withdrawn, they would accumulate, we have, since by the hypothesis of the question, the mth part of all the deposits made, once μ years have elapsed, are liable to withdrawal on demand.

$$\Sigma_{n\,|\,\mu} = \{Z_{n\,|\,\mu} + Z_{\overline{n-1}\,|\,\overline{\mu-1}} + Z_{\overline{n-2}\,|\,\overline{\mu-2}} + \ldots + Z_{\overline{n-\mu+1}\,|\,1}\}$$
$$+\{Z_{n-\mu} + Z_{n-\mu-1} + \ldots + Z_2 + Z_1\} \ldots\ldots\ldots\ldots (13).$$

$\Sigma_{n\,|\,\mu}$ thus will be readily found, if the general tables for $Z_{n\,|\,\mu}$ and Z_n happen to have been calculated for the society.

70.—If not, the expression can be reduced by eq^{n} (1) and (5), Arts. 61 and 63, to

$$\Sigma_{n-\mu} = P.\left\{\left[(1+i)^n + (1+i)^{n-1} + \ldots\ldots + (1+i)\right] - \right.$$
$$\left. -\left(\frac{i-i'}{m}\right).\left[\frac{\mu.(1+i)^{n-\mu} + \left\{(1+i)^{n-\mu} + (1+i)^{n-\mu-1} + \ldots + (1+i)\right\} - n}{i}\right]\right\}$$
$$= P.\left[(1+i).\frac{(1+i)^n - 1}{i} - \left(\frac{i-i'}{m.i}\right).\left\{\mu.(1+i)^{n-\mu} + \right.\right.$$
$$\left.\left. + (1+i).\frac{(1+i)^{n-\mu} - 1}{i} - n\right\}\right], \ldots\ldots\ldots\ldots (14),$$

which results contain only quantities that can be easily obtained from the ordinary Amount and Annuity Tables 4 and 10.

71.—From the preceding equations, we have, when $p > \mu$, a relation between $\Sigma_{p+1\,|\,\mu}$ and $\Sigma_{p\,|\,\mu}$.

$$\Sigma_{p+1\,|\,\mu} = (\Sigma_{p\,|\,\mu} + P).(1+i) - (p+1).\frac{P}{m}(i-i') \ldots (15).$$

72.—If a withdrawal take place at the end of n_1 years, and $n_1 . \frac{P}{m}$ be withdrawn, the *Remainder of the Claim* (if no further payments be made),

$$= \left\{\Sigma_{n_1\,|\,\mu} - n_1 . \frac{P}{m}\right\}.(1+i)^{n-n_1} \ldots\ldots\ldots\ldots (16).$$

73.—The preceding principle of adopting *two* rates of interest as the basis

of a *Savings Fund* presents many advantages: on the one hand, greater inducements would be offered to the industrious to strive to effect savings, through the higher interest they may thus obtain; at the same time that the absence of power to withdraw, in a hurry, more than a small portion of their deposits would act as a check upon subsequent extravagance; whilst, on the other hand, the Government or private company which undertook the investment of the money received would be less exposed to inconvenience or loss through withdrawals.

On the Purchase of Annuities.

74.—*Let it be desired to calculate the price* Φ *of* £1 *a year for* n *years certain, so that the annuity may pay the purchaser a high rate of interest* i *for his money, and yet be sufficient, over and above, to replace the capital* Φ *expended at the expiration of the term, by investing a portion of the annuity to accumulate at a moderate rate of interest* i' *per pound.* This problem is important, as it not unfrequently happens that a purchaser desires to realize a higher rate of interest for the use of his capital than he could obtain if he tried to reinvest a portion of the annuity; for instance, he may wish the annuity to pay him 6 or 7 per cent., whilst he might not himself be able to reinvest at more than 3 or 4 per cent.

Let £1 a year for n years amount to $\Sigma_{i'}$ when accumulated at i' interest.

Then $\frac{1}{\Sigma_{i'}}$ is an annuity, which would amount to £1 in the same time at the same rate of interest.

$\therefore$ $\frac{\Phi}{\Sigma_{i'}}$ ..... do. ..... Φ do.

$\therefore$ The annuity of £1, which is purchased at a cost of Φ, should be sufficient to give the purchaser $\Phi . i$ a year, and leave $\frac{\Phi}{\Sigma_{i'}}$ to be invested,

or

$$1 = \Phi . i + \frac{\Phi}{\Sigma_{i'}}$$

$$\therefore \quad \Phi = \left(i + \frac{1}{\Sigma_{i'}} \right)^{-1} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots (1).$$

and Φ can readily be calculated by the aid of a table which contains the general amounts of annuities Σ (see Table 10). *The same could have been deduced from the remarkable property in eq*^{n} 4, *Art.* 28.

75.—The result in (1), whilst it practically pays the *purchaser* only i interest for his capital, through his want of power of reinvesting at a higher rate

than i', $(i' < i)$, yet in reality is a charge upon the *grantor* of the annuity of a higher rate than i. For if the rate allowed by him to liquidate a loan of £Φ were only i per pound, Φ would equal

$$\left(i + \frac{1}{\Sigma_i}\right)^{-1}$$

or the purchase-money that he would receive for granting £1 a year would be more than is shown by equation (1), since $\Sigma_i > \Sigma_{i'}$.

76.—The actual rate i_2 that it costs the grantor, who sells £1 a year at the price afforded by (1), would be obtained from

$$\Phi = \frac{1 - (1 + i_2)^{-n}}{i_2}$$

On Deposit Life Assurance.

77. The system of Deposit Life Assurance presents another feature of provident investment for the savings of the industrious classes. The advantage offered consists of the Savings Banks' facilities of withdrawal of the whole or part of the deposit premium, whilst the benefits of an ordinary life office are secured.

Let a_x = the present value of an annuity of £1 on a life aged x, the first payment being made at once.

π_x = the mathematical annual premium to assure the sum of £1, payable at the end of the year in which the life x dies.

p_x = the office annual premium for the same, which is equal to a $f(\pi_x)$.

Then from simple reasoning it can be proved that

$$\pi_x = \frac{1}{a_x} - d \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (1).$$

where $d = \frac{i}{1+i}$, the present value of the interest of £1 due at the end of one year.

It will be observed that this formula is analogous to that for the sinking fund, payable at the *beginning* of each year, to realize £1 at the *end* of $(x+1)$ years, (Art. 27) which

$$= \frac{1}{1 + \Phi_x} - d.$$

78.—Let S'_x = the single premium charged by an office to assure £1, payable at the end of the year in which a life aged x dies.

And let it be stipulated that $\frac{S'_x}{m}$ may be withdrawn on demand; then for

reasons explained in Art. 59 a lower rate of interest (i') must be allowed to the assured on $\frac{S'_x}{m}$ than that allowed (i) on the non-withdrawable portion $S'_x\left(\frac{m-1}{m}\right)$; therefore the annual interest arising from the investment of S'_x is $S'_x\frac{(m-1)i+i'}{m}$, payable at the end of each year, which is equivalent to $\frac{S'_x}{m}\left\{(m-1)d+d'\right\}$ at the beginning of each year.

Hence, since an annual premium of p_x will assure £1 on a life aged x, the annual interest $\frac{S'_x}{m}\left\{(m-1)\,d+d'\right\}$ will assure the sum $\frac{S'_x}{p_x.m}\left\{(m-1)\,d+d'\right\}$ on the same life.

$$\therefore\ S'_x+\frac{S'_x}{p_x.m}\left\{(m-1)d+d'\right\}=£1.$$

$$\text{or, } S'_x=\frac{p_x}{p_x+\frac{1}{m}\left\{(m-1)\,d+d'\right\}}\ \ldots\ldots\ldots\ldots\ldots\ldots\ (1).$$

Cor.—If in this equation we take $p_x=\pi_x$, $i'=i$, and $m=1$,

$$S_x=\frac{\pi_x}{\pi_x+d}\ \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ (2).$$

the ordinary formula expressing the relation between the single premium S_x and the net annual premium π_x to assure £1 on a life aged x.

REMARK.—By means of equation (1) a table of Deposit Assurances can be computed from a table of annual premiums, and the Deposit Policies will be with or without profits, according as p_x is on the participating or non-participating scale.

79.—Suppose an ordinary Annual Premium Policy of Assurance to be taken out by a life aged x years, and that at the expiration of n years the assured wish to suspend all future payments and to obtain for his acquired interest in the Company a *Deposit Policy*, then the amount thereof

$$=(\text{office value of old Policy})\times\left[1+\frac{1}{m}\left\{(m-1)\,d+d'\right\}\frac{1}{p_{x+n}}\right]\ldots\ (3).$$

(the mth part of the office value of the old Policy being withdrawable.)

80.—If after n years $\frac{S'_x}{m}$ be withdrawn on a Deposit Policy, the diminution in the Policy

$$=\frac{S'_x}{m}\left\{1+\frac{d'}{p_{x+n}}\right\}\ \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ (4).$$

and an endorsement should be made on the original Deposit Policy to the effect that it is diminished to the extent given by equation (4).

TABLES.

TABLE I.

Shewing the *Decimal* corresponding to every Penny in the *Pound.*

s.	d.	Decimal.	s.	d.	Decimal.	s.	d.	Decimal.	s.	d.	Decimal.	s.	d.	Decimal.
0	1	.004	4	1	.204	8	1	.404	12	1	.604	16	1	.804
0	2	.008	4	2	.208	8	2	.408	12	2	.608	16	2	.808
0	3	.012	4	3	.212	8	3	.412	12	3	.612	16	3	.812
0	4	.017	4	4	.217	8	4	.417	12	4	.617	16	4	.817
0	5	.021	4	5	.221	8	5	.421	12	5	.621	16	5	.821
0	6	.025	4	6	* .225	8	6	.425	12	6	.625	16	6	.825
0	7	.029	4	7	.229	8	7	.429	12	7	.629	16	7	.829
0	8	.033	4	8	.233	8	8	.433	12	8	.633	16	8	.833
0	9	.037	4	9	.237	8	9	.437	12	9	.637	16	9	.837
0	10	.042	4	10	.242	8	10	.442	12	10	.642	16	10	.842
0	11	.046	4	11	.246	8	11	.446	12	11	.646	16	11	.846
1	0	.050	5	0	.250	9	0	.450	13	0	.650	17	0	.850
1	1	.054	5	1	.254	9	1	.454	13	1	* .654	17	1	* .854
1	2	.058	5	2	.258	9	2	.458	13	2	.658	17	2	.858
1	3	.062	5	3	.262	9	3	.462	13	3	.662	17	3	.862
1	4	.067	5	4	.267	9	4	.467	13	4	.667	17	4	.867
1	5	.071	5	5	.271	9	5	.471	13	5	.671	17	5	.871
1	6	* .075	5	6	.275	9	6	.475	13	6	.675	17	6	.875
1	7	.079	5	7	.279	9	7	.479	13	7	.679	17	7	.879
1	8	.083	5	8	.283	9	8	.483	13	8	.683	17	8	.883
1	9	.087	5	9	.287	9	9	.487	13	9	.687	17	9	.887
1	10	.092	5	10	.292	9	10	.492	13	10	.692	17	10	.892
1	11	.096	5	11	.296	9	11	.496	13	11	.696	17	11	.896
2	0	.100	6	0	.300	10	0	.500	14	0	.700	18	0	.900
2	1	.104	6	1	.304	10	1	.504	14	1	.704	18	1	.904
2	2	.108	6	2	.308	10	2	.508	14	2	.708	18	2	.908
2	3	.112	6	3	.312	10	3	.512	14	3	.712	18	3	.912
2	4	.117	6	4	.317	10	4	.517	14	4	.717	18	4	.917
2	5	.121	6	5	.321	10	5	.521	14	5	.721	18	5	.921
2	6	.125	6	6	.325	10	6	* .525	14	6	.725	18	6	.925
2	7	.129	6	7	.329	10	7	.529	14	7	.729	18	7	.929
2	8	.133	6	8	.333	10	8	.533	14	8	.733	18	8	.933
2	9	.137	6	9	.337	10	9	.537	14	9	.737	18	9	.937
2	10	.142	6	10	.342	10	10	.542	14	10	.742	18	10	.942
2	11	.146	6	11	.346	10	11	.546	14	11	.746	18	11	.946
3	0	.150	7	0	.350	11	0	.550	15	0	.750	19	0	.950
3	1	.154	7	1	.354	11	1	.554	15	1	* .754	19	1	* .954
3	2	.158	7	2	.358	11	2	.558	15	2	.758	19	2	.958
3	3	.162	7	3	.362	11	3	.562	15	3	.762	19	3	.962
3	4	.167	7	4	.367	11	4	.567	15	4	.767	19	4	.967
3	5	.171	7	5	.371	11	5	.571	15	5	.771	19	5	.971
3	6	.175	7	6	* .375	11	6	.575	15	6	.775	19	6	.975
3	7	.179	7	7	.379	11	7	.579	15	7	.779	19	7	.979
3	8	.183	7	8	.383	11	8	.583	15	8	.783	19	8	.983
3	9	.187	7	9	.387	11	9	.587	15	9	.787	19	9	.987
3	10	.192	7	10	.392	11	10	.592	15	10	.792	19	10	.992
3	11	.196	7	11	.396	11	11	.596	15	11	.796	19	11	.996
4	0	.200	8	0	.400	12	0	.600	16	0	.800	20	0	1.000

**Example.*—The value of the Decimal .075, is 1*s.* 6*d.*—.225, is 4*s.* 6*d.*—.375, is 7*s.* 6*d.*—.525, is 10*s.* 6*d.*—.654, is 13*s.* 1*d.*—.754, is 15*s.* 1*d.*—.854, is 17*s.* 1*d.*—.954, is 19*s.* 1*d.*

TABLE II.

(A.) *Shewing the sum per Pound to which a Rate of Interest per cent. is equivalent.*

				s.	d.	
2 per cent interest	is equal	to	nearly	0	5	in the pound.
2½	"	"	exactly	0	6	"
3	"	"	nearly	0	7¼	"
3½	"	"	"	0	8½	"
4	"	"	"	0	9¾	"
4½	"	"	"	0	11	"
5	"	"	exactly	1	0	"
5½	"	"	nearly	1	1¼	"
6	"	"	"	1	2½	"
7	"	"	"	1	5	"
8	"	"	"	1	7¼	"
9	"	"	"	1	9¾	"
10	"	"	exactly	2	0	"

(B.) *To calculate the Interest for One Year on any sum.*

If the rate be 2 per cent.	multiply the sum	by .02	or $\frac{1}{50}$	and the product is the	interest required
If 2½ "	by .025	or $\frac{1}{40}$		"	"
If 3 "	by .03	or $\frac{3}{100}$		"	"
If 3½ "	by .035	or $\frac{7}{200}$		"	"
If 4 "	by .04	or $\frac{1}{25}$		"	"
If 4½ "	by .045	or $\frac{9}{200}$		"	"
If 5 "	by .05	or $\frac{1}{20}$		"	"
If 6 "	by .06	or $\frac{3}{50}$		"	"
If 7 "	by .07	or $\frac{7}{100}$		"	"
If 8 "	by .08	or $\frac{2}{25}$		"	"
If 9 "	by .09	or $\frac{9}{100}$		"	"
If 10 "	by .1	or $\frac{1}{10}$		"	"

REMARK.—To perform the above, it will be remembered that to multiply a quantity by a fraction it must be first multiplied by the numerator, and then the result divided by the denominator of the fraction. The division by 100 can be effected by dividing twice by 10. Similarly the other divisors can be separated. and the quotient obtained by successive divisions.

Note to Table IV., page 4.

Table IV. *can, by means of the following Formulæ, be made to give the results generally required from Tables of Discount or Annuities.*

1. Table IX. The *present value* of £100 due at the end of any number of years is equal to £100 divided by the *Amount*, in Table IV., of £1 at the end of the same time.

2. Table X. The *Amount* of an *Annuity* of £100 in any number of years is equal to The quotient of: (the *Amount* in Table IV., of a *single* £100 in the same time, less £100,) (divided by the rate of interest per pound) involved in the calculation.

3. Table XI. The *present value* of an Annuity of £100 for any number of years is equal to The quotient of £100 *diminished* by the *present value* of a single £100, (due at the end of the same time) divided by the rate of interest per pound.*

4. Tables X and XI may be calculated from each other, if either be known, by the property, that

$$\frac{1}{\text{Present Value of an Annuity.}} \text{ less } \frac{1}{\text{Amount of an Annuity.}} \text{ is equal to a year's interest.}$$

* [The present value required for the division being found from Table IV., by the formula of (1).]

TABLE III.

Shewing the RATE OF INTEREST obtainable from £3 per cent. Stock for £100 cash invested according to the price of the day.

Price of Stock. (1.)	Interest which £100 cash obtains. (2.)			Amount of Stock £100 will purchase, or amont of Stock required to be sold to produce £100. (3.)			*Most recent years in which the average price of Consols was that of (1.)
	£	s.	d.	£.	s.	d.	
60	5	0	0	166	13	4	1815
61	4	18	9	163	18	9	1813
62	4	16	9	161	5	10	1816
63	4	15	3	158	14	8	
64	4	13	9	156	5	0	1811
65	4	12	3	153	16	11	
66	4	10	11	151	10	4	1808
67	4	9	7	149	5	1	1814
68	4	8	3	147	1	2	1820
69	4	7	0	144	18	7	
70	4	5	9	142	17	2	
71	4	4	6	140	16	11	
72	4	3	4	138	17	8	1819
73	4	2	2	136	19	9	1817
74	4	1	1	135	2	9	1821
75	4	0	0	133	6	8	1788
76	3	18	11	131	11	7	1793
77	3	17	11	129	17	5	
78	3	16	11	128	4	1	1777
79	3	15	11	126	11	8	1826
80	3	15	0	125	0	0	1831
81	3	14	1	123	9	2	
82	3	13	2	121	19	0	1760
83	3	12	4	120	9	8	1827
84	3	11	5	119	0	11	1832
85	3	10	7	117	12	11	1848
86	3	9	9	116	5	7	1847
87	3	9	0	114	18	10	1773
88	3	8	2	113	12	9	1833
89	3	7	5	113	7	2	1841
90	3	6	8	111	2	3	1855
91	3	5	11	109	17	10	1856
92	3	5	3	108	13	11	1842
93	3	4	6	107	10	7	1849
94	3	3	10	106	7	8	1744
95	3	3	2	105	5	3	1843
96	3	2	6	104	3	4	1853
97	3	1	10	103	1	10	1850
98	3	1	3	102	0	10	1851
99	3	0	7	101	0	3	1852
100	3	0	0	100	0	0	1751
101	2	19	4	99	0	2	1743

* [The average price of Consols for the whole of the 100 years, 1759 to 1858, is about 78½. During that period the average price for the whole of a year was never at or above par. The average for several months of the year 1852 was above 100. It is curious, however, that during several years previous to 1759, the average price for the whole of the year was at or above par: thus, in 1733, '42, '50, and '51, it was 100; in 1739 and '43, 101; in '36, 102; '54, 103; '38, '52, and '53, 104; and in 1737 it was as high as 106. On the other hand, between 1781 and 1815, there were ten years in which the average fell below 60. Between 1822 and 1831, a medium price of about 80 was kept to.].

From the TREATISE ON SAVINGS BANKS.

TABLE IV.

Shewing the Amount to which £100 Principal will increase at various Rates of Compound yearly *Interest. (See Note, page 2.)*

At the end of Years.	3 per cent.	4 per cent.	5 per cent.	6 per cent.	7 per cent.	8 per cent.
1	103.00	104.00	105.00	106.00	107 00	108.00
2	106.09	108.16	110.25	112.36	114.49	116.64
3	109.27	112.48	115.76	119.10	122.50	125.97
4	112.55	116.98	121.55	126.24	131.07	136.04
5	115.92	121.66	127.62	133.82	140.25	146.93
6	119.40	126.53	134.00	141.85	150.07	158.68
7	122.98	131.59	140.71	150.36	160.57	171.38
8	126.67	136.85	147.74	159.38	171.81	185.09
9	130.47	142.33	155.13	168.94	183.84	199.90
10	134.39	148.02	162.88	179.08	196.71	215.89
11	138.42	153.94	171.03	189.82	210.48	233.16
12	142.57	160.10	179.58	201.21	225.21	251.81
13	146.85	166.50	188.56	213.29	240.98	271.96
14	151.25	173.16	197.99	226.09	257.85	293.71
15	155.79	180.09	207.89	239.65	275.90	317.21
16	160.47	187.29	218.28	254.03	295.21	342.59
17	165.28	194.79	229.20	269.27	315.88	370.00
18	170.24	202.58	240.66	285.43	337.99	399,60
19	175.35	210.68	252.69	302.55	361.65	431,57
20	180.61	219.11	265.32	320.71	386.96	466 09
21	186.02	227.87	278.59	339.95	414.05	503,38
22	191.61	236.99	292.52	360.35	443.04	543,65
23	197.35	246.47	307.15	381.97	474.05	587,14
24	203.27	256.33	322.50	404.89	507.23	634.11
25	209.37	266.58	338.63	429.18	542.74	684.84
26	215.65	277.24	355.56	454.93	580.73	739.63
27	222.12	288.33	373.34	482.23	621.38	798.80
28	228.79	299.87	392.01	511.16	664.88	862.71
29	235.65	311.86	411.61	541.83	711.42	931.72
30	* 242.72	324.34	* 432.19	574.34	761.22	1006.26
31	250.00	337.31	453.80	608.81	814.51	1086.76
32	257.50	350.80	476.49	645.33	871.52	1173.70
33	265.23	364.83	500.31	684.05	932.53	1267.60
34	273.19	379.43	525.33	725.10	997.81	1369.01
35	281.38	394.60	551.60	768.60	1067.65	1478.53
36	289.82	410.39	579.18	814.72	1142.39	1596.81
37	298.52	426.80	608.14	863.60	1222.36	1724.56
38	307.47	443.88	638.54	915.42	1307.92	1862.52
39	316.70	461.63	670.47	970.35	1399.48	2011.52
40	326.20	480.10	703.99	1028.57	1497.44	2172.45
41	335.99	499.30	739.19	1090.28	1602.26	2346.24
42	346.06	519.27	776.15	1155.70	1714.42	2533.94
43	356.45	540.04	814.96	1225.04	1834.43	2736.66
44	367.14	561.65	855.71	1298.54	1962.84	2955.59
45	378.15	584.11	898.50	1376.46	2100.24	3192.04
46	389.50	607.48	943.42	1459.04	2247.26	3447.40
47	401.18	631.78	990.59	1546.59	2404.57	3723.20
48	413.22	657.05	1040.12	1639.38	2572.89	4021.05
49	425.62	683.33	1092.13	1737.75	2752.99	4342.74
50	438.39	710.66	1146.74	1842.01	2945.70	4690.16

* EXAMPLE.—£100 will amount at the end of 30 years to £242. 14*s.* 5*d.*, if interest be made at the rate of 3 per cent. per annum, or to £432. 3*s.* 10*d.* at 5 per cent.

Notes:—1.—To find the *present value* of a sum of money payable at the end of any number of years, divide that sum by the amount in the above Table and multiply by 100.

2.—*To find the* amount *of* £100 *at the end of any number of years not given in the above Table, take the product of the figures opposite any two terms in the Table, which, added together, would make up the term required, and divide by* 100. *Thus, the amount of* £100 *at the end of* 53 *years,* (50 *years and* 3 *years*), *is, at* 5 *per cent*, (£1146.74 × 115.76) *or* £1327.47. *Again, the amount of* £100 *at* 3 *per cent. at the end of* 100 *years* (50 + 50) *is* (£438.39 × 438.39), *or* £1921.86. *See also Note, page* 2.

TABLE V.

Shewing the Rates of Interest payable only once *a-year, which are equivalent to* nominal *annual rates of Interest actually paid at frequent intervals in each year.*

Nominal Annual Rate per cent.	Real yearly interest, to which the nominal rates are equivalent when paid:—											
	Yearly.			Half-yearly.			Quarterly.			Monthly.			Momently.		
	£.	s.	d.	£.	s.	d.	£.	s.	d.	£.	s.	d.	£.	s.	d.
3 per cent.	3	0	0	3	0	5½	3	0	8¼	3	0	10	3	0	11
4 per cent.	4	0	0	4	0	9¾	4	1	2½	4	1	6	4	1	7¾
5 per cent.	5	0	0	*5	1	3	5	1	10¾	5	2	4	5	2	6½
6 per cent.	6	0	0	6	1	9¾	6	2	8¾	6	3	4	6	3	8¼
7 per cent.	7	0	0	7	2	5½	7	3	8¾	7	4	7	7	5	0¼
8 per cent.	8	0	0	8	3	2½	8	4	10½	8	6	0	8	6	7

* *Example.*—If a person receives interest half-yearly, after the *nominal* annual rate of 5 per cent., the actual interest derived by him by one year's investment is £5. 1*s.* 3*d.*

TABLE VI.

Shewing the nominal Annual Rates of Interest paid momently, *which are equivalent to rates paid at the* end *of each year.*

Yearly Rate.	Corresponding momentaneous Rate.				Yearly Rate.	Corresponding momentaneous Rate.			
			£.	s.	d.			£.	s.	d.
2 per cent.	£1.9802	or	1	19	7½	7 per cent.	£6.7658	or	6	15	4
3 „	2.9558		2	19	1½	8 „	7.6791		7	13	11¼
4 „	3.9220		3	18	5½	9 „	8.6177		8	12	4¼
5 „	4.8790		*4	17	7	10 „	9.5310		9	10	7½
6 „	5.8268		5	16	6½						

* *Example.*—The amount to which a sum of money will accumulate in any number of years at *yearly* interest 5 per cent., is the same as the amount to which it would accumulate at *momentaneous* interest, after the nominal annual rate of £4. 17*s.* 7*d.* per cent.

TABLE VII.

Shewing the Amount to which £100 will increase at Compound Interest, according as it is paid yearly, half-yearly, quarterly, or momently. [*See Table IV.*]

Nominal rate of Interest.	Payable.	The Amount of £100 in			
		1 Year.	5 Years.	25 Years	50 Years.
3 per cent.	yearly	103.000	115.927	209.378	438.391
	half-yearly	103.022	116.054	210.524	443.204
	quarterly	103.034	116.119	211.108	445.667
	momently	103.045	116.183	211.700	448.169
4 per cent.	yearly	104.000	121.665	266.584	710.668
	half-yearly	104.040	121.899	269.159	724.465
	quarterly	104.060	122.019	270.481	731.602
	momently	104.081	122.140	271.828	738.906
5 per cent.	yearly	105.000	127.628	338.634	1146.740
	half-yearly	105.062	128.008	343.711	1181.372
	quarterly	105.095	128.204	346.340	1199.517
	momently	105.127	128.402	349.034	1218.249
6 per cent.	yearly	106.000	133.823	429.187	1842.015
	half-yearly	106.090	134.392	438.391	1921.863
	quarterly	106.136	134.685	443.204	1964.303
	momently	106.184	134.986	448.169	2008.553
7 per cent.	yearly	107.000	140.255	542.743	2945.703
	half-yearly	107.122	141.060	558.493	3119.141
	quarterly	107.186	141.478	566.816	3212.799
	momently	107.251	141.907	575.460	3311.545
8 per cent.	yearly	108.000	146.933	684.847	4690.161
	half-yearly	108.160	148.024	710.668	5050.495
	quarterly	108.243	148.595	724.465	5248.490
	momently	108 329	149.182	738.906	5459.815

TABLE VIII.

Time in which Money will double itself at Simple or Compound yearly Interest.

Rate Per cent.		At Simple Interest.	At Compound Interest.			
		Years.	Years.		Years.	Days.
2	£1 or any other sum will double itself in	50.0000	35.00278878	=	35	2
2½		40.0000	28.07103453	=	28	26
3		33.3333	23.44977225	=	23	165
3½		28.5714	20.14879168	=	20	55
4		25.0000	17.67298769	=	17	246
4½		22.2222	15.74730184	=	15	272
5		20.0000	14.20669908	=	14	76
6		16.6666	11.89566105	=	11	327
7		14.2857	10.24476835	=	10	90
8		12.5000	9.00646834	=	9	3
9		11.1111	8.04323173	=	8	16
10		10.0000	7.27254090	=	7	100

As to the time in which Money Doubles, see Chapter 2, and the Appendix, for our remarkable theorem, that—for all rates per cent. under 10 per cent, the number of years in which a sum of money will Double itself at compound interest, is simply 70 divided by the rate per cent.

EXAMPLES.—1.—*Divide* 70 *by the rate of interest per cent*, and take that whole number which is *nearest* to the quotient obtained. Thus, if the rate of interest be—

2 per cent.	then the number of years will be	$\frac{70}{2}$	or 35	years	nearly.	
3½	"	"	$\frac{70}{3\frac{1}{2}}$	" 20	"	"
5	"	"	$\frac{70}{5}$	" 14	"	"
8	"	"	$\frac{70}{8}$	" 9	"	"
10	"	"	$\frac{70}{10}$	" 7	"	"

2.—The time in which money *doubles* being thus ascertained, to find the further time in which it will become *threefold*, divide the doubling period by 1.70; *fourfold*, by 2.40; *fivefold*, by 3.10; *sixfold*, by 3.80; and so on, the divisor increasing in arithmetical progression by .70 each time.

Thus, since money *doubles* at 5 *per cent.* in 14 years, it would become *threefold* in $\frac{14}{1.70}$ or eight years more, making 22 together; *fourfold*, in $\frac{14}{2.40}$ or six years more, or 28 years altogether; and so on.

TABLE IX.

Shewing the present Value of £100 payable at the end of any number of Years, at various Rates of Interest.

This Table will serve to determine the *present value* of Shares in a Building Society, or the sum which must be given at once to obtain a *paid-up* Share, which is to be received at the end of a specified number of years.

Years.	3 per cent.	4 per cent.	5 per cent.	6 per cent.	7 per cent.	8 per cent.
1	97.08	96.15	95.23	94.33	93.45	92.59
2	94.25	92.45	90.70	88.99	87.34	85.73
3	91.51	88.89	86.38	83.96	81.62	79.38
4	88.84	85.48	82.27	79.20	76.28	73.50
5	86.26	82.19	78.35	74.72	71.29	68.05
6	83.74	79.03	74.62	70.49	66.63	63.01
7	81.30	75.99	71.06	66.50	62.27	58.34
8	78.94	73.06	67.68	62.74	58.20	54.02
9	76.64	70.25	64.46	59.18	54.39	50.02
10	74.40	67.55	*61.39	55.83	50.83	46.31
11	72.24	64.95	58.46	52.67	47.50	42.88
12	70.13	62.45	55.68	49.69	44.40	39.71
13	68.09	60.05	53.03	46.88	41.49	36.76
14	66.11	57.74	50.50	44.23	38.78	34.04
15	64.18	55.52	48.10	41.72	36.24	31.52
16	62.31	53.39	45.81	39.36	33.87	29.18
17	60.50	51.33	43.62	37.13	31.65	27.02
18	58.73	49.36	41.55	35.03	29.58	25.02
19	57.02	47.46	39.57	33.05	27.65	23.17
20	55.36	45.63	37.68	31.18	25.84	21.45
21	53.75	43.88	35.89	29.41	24.15	19.86
22	52.18	42.19	34.18	27.75	22.57	18.39
23	50.66	40.57	32.55	26.18	21.09	17.03
24	49.19	39.01	31.00	24.69	19.71	15.77
25	47.76	37.51	29.53	23.30	18.42	14 60
26	46.36	36.06	28.12	21.98	17.21	13.52
27	45.01	34.68	26.78	20.73	16.09	12.51
28	43.70	33.34	25.50	19.56	15.04	11.59
29	42.43	32.06	24.29	18.45	14.05	10.73
30	41.19	30.83	23.13	17.41	13.13	9.93
31	39.99	29.64	22.03	16.42	12.27	9.20
32	38.83	28.50	20.98	15.49	11.47	8.52
33	37.70	27.40	19.98	14.61	10.72	7.88
34	36.60	26.35	19.03	13.79	10.02	7.30
35	35.53	25.34	18.12	13.01	9.36	6.76
36	34.50	24.36	17.26	12.27	8.75	6 26
37	33.49	23.42	16.44	11.57	8.18	5.79
38	32.52	22.52	15.66	10.92	7.64	5.36
39	31.57	21.66	14.91	10.30	7.14	4.97
40	30.65	20.82	14.20	9 72	6.67	4.60
41	29.76	20.02	13.52	9.17	6.24	4.26
42	28.89	19.25	12.88	8.65	5.83	3.94
43	28.05	18.51	12.27	8.16	5.45	3.65
44	27.23	17.80	11.68	7.70	5.09	3.38
45	26.44	17.12	11.12	7.26	4.76	3.13
46	25.67	16.46	10.59	6.85	4.45	2.90
47	24.92	15.82	10.09	6.46	4.15	2.68
48	24.20	15.21	9.61	6.10	3.88	2.48
49	23.49	14.63	9.15	5.75	3.63	2.30
50	22.81	14.07	8.72	5.42	3.39	2.13

* *Example.*—If a member of a Building Society desire to purchase by a single payment a Share, whose amount is £100, to be received at the end of 10 years, and the rate of interest be 5 per cent., he must pay £61.39 or £61. 7*s.* 11*d.* for the same; a modification of course being made in the case of *monthly* payments.

[*Refer to Note No.* 2, *at foot of Table IV, page* 4, *for any time beyond* 50 *years.*]

TABLE X.

See Remarks, No. 2, at foot of page 2.]

Shewing the Amount to which an Annuity of £100, paid at the end *of each year, will accumulate at Compound Interest.*

This Table will serve to determine the yearly subscription requisite to purchase an investing share in a Building Society

Years.	3 per cent.	4 per cent.	5 per cent.	6 per cent.	7 per cent.	10 per cent.
1	100.00	100.00	100.00	100.00	100.00	100.00
2	203.00	204.00	205.00	206.00	207.00	210.00
3	309.09	312.16	315.25	318.36	321.49	331.00
4	418.36	424.64	431.01	437.46	443.99	464.10
5	530.91	541.63	552.56	563.70	575.07	610.51
6	646.84	663.29	680.19	697.53	715.32	771.56
7	766.24	789.82	814.20	839.38	865.40	948.71
8	889.23	921.42	954.91	989.74	1025.98	1143.58
9	1015.91	1058.27	1102.65	1149.13	1197.79	1357.94
10	1146.38	1200.61	1257.78	1318.07	1381.64	1593.74
11	1280.77	1348.63	*1420.67	1497.16	1578.35	1853.11
12	1419.20	1502.58	1591.71	1686.99	1788.84	2138.42
13	1561.77	1662.68	1771.29	1888.21	2014.06	2452.27
14	1708.63	1829.19	1959.86	2101.50	2255.04	2797.49
15	1859.89	2002.35	2157.85	2327.59	2512.90	3177.24
16	2015.68	2182.45	2365.74	2567.25	2788.80	3594.97
17	2176.15	2369.75	2584.03	2821.28	3084.02	4054.47
18	2341.44	2564.54	2813.23	3090.56	3399.90	4559.91
19	2511.68	2767.12	3053.90	3375.99	3737.89	5115.90
20	2687.03	2977.80	3306.59	3678.55	4099.54	5727.49
21	2867.64	3196.92	3571.92	3999.27	4486.51	6400.24
22	3053.67	3424.79	3850.52	4339.22	4900.57	7140.27
23	3245.28	3661.78	4143.04	4699.58	5343.61	7954.30
24	3442.64	3908.26	4450.19	5081.55	5817.66	8849.73
25	3645.92	4164.59	4772.70	5486.45	6324.90	9834.70
26	3855.30	4431.17	5111.34	5915.63	6867.64	10918.17
27	4070.96	4708.42	5466.91	6370.57	7448.38	12109.99
28	4293.09	4996.75	5840.25	6852.81	8069.76	13420.99
29	4521.88	5296.62	6232.27	7363.97	8734.65	14863.09
30	4757.54	5608.49	6643.88	7905.81	9446.07	16449.40
31	5000.26	5932.83	7076.07	8480.16	10207.30	18194.34
32	5250.27	6270.14	7529.88	9088.97	11021.81	20113.77
33	5507.78	6620.95	8006.37	9734.31	11893.34	22225.15
34	5773.01	6985.79	8506.69	10418.37	12825.87	24547.66
35	6046.20	7365.22	9032.03	11143.47	13823.68	27102.43
36	6327.59	7759.83	9583.63	11912.08	14891.34	29912.68
37	6617.42	8170.22	10162.81	12726.81	16033.74	33003.94
38	6915.94	8597.03	10770.95	13590.42	17256.10	36404.34
39	7223.42	9040.91	11409.50	14505.84	18564.02	40144.77
40	7540.12	9502.55	12079.97	15476.19	19963.51	44259.25
41	7866.32	9982.65	12783.97	16504.76	21460.95	48785.18
42	8202.31	10481.95	13523.17	17595.05	23063.22	53763.69
43	8548.38	11001.23	14299.33	18750.75	24777.64	59240.06
44	8904.84	11541.28	15114.30	19975.80	26612.08	65264.07
45	9271.98	12102.93	15970.01	21274.35	28574.93	71890.48
46	9650.14	12687.05	16868.51	22650.81	30675.17	79179.53
47	10039.65	13294.53	17811.94	24109.86	32922.43	87197.48
48	10440.84	13926.32	18802.53	25656.45	35327.00	96017.23
49	10854.06	14583.37	19842.66	27295.84	37899.90	105718.95
50	11279.68	15266.70	20934.79	29033.59	40652 89	116390.85

[NOTE.—The above Table will also serve to determine the amount of an Annuity paid at the *beginning* of each year.

For the amount of an Annuity for n years paid at the *beginning* of each year. } = { the amount of an Annuity (for $n + 1$) years from above Table — 100.

* *Example.*—The amount of an Annuity of £100 at 5 per cent. for 10 years paid at the beginning of each year = £1420.67—£100.
= £1320.67.]

TABLE XI.

[See Remarks No. 3, at foot of page 2.]

Shewing the present Value of an Annuity of £100 at the end *of each Year.*

Years.	3 per cent.	4 per cent.	5 per cent.	6 per cent.	7 per cent.	8 per cent.
1	97.08	96.15	95.23	94.33	93.45	92.59
2	191.34	188.60	185.94	183.33	180.80	178.32
3	282.86	277.50	272.32	267.30	262.43	257.70
4	371.70	362.98	354.59	346 51	338.72	331.21
5	457.97	445.18	432.94	421.23	410.01	399.27
6	541.71	524.21	507.56	491.73	476.65	462.28
7	623.02	600.20	578.63	558.23	538.92	520.63
8	701.96	673.27	646.32	620.97	597.12	574,66
9	778.61	743.53	*710.78	680.16	651.52	624.68
10	853.02	811.08	772.17	736.00	702.35	671.00
11	925.26	876.04	830.64	788.68	749.86	713.89
12	995.40	938.50	886.32	838.38	794.26	753.60
13	1063.49	998.56	939.35	885.26	835.76	790.37
14	1129.60	1056.31	989.86	929.49	874.54	824.42
15	1193.79	1111.83	1037.96	971.22	910.79	855.94
16	1256.11	1165.22	1083.77	1010.58	944.66	885.13
17	1316.61	1216.56	1127.40	1047.72	976.32	912.16
18	1375.35	1265.92	1168.95	1082.76	1005.90	937.18
19	1432.37	1313.39	1208.53	1115.81	1033.55	960.35
20	1487.74	1359.03	1246.22	1146.99	1059.40	981.81
21	1541.50	1402.91	1282.11	1176.40	1083.55	1001.68
22	1593.69	1445.11	1316.30	1204.15	1106.12	1020.07
23	1644.36	1485.68	1348.85	1230.33	1127.21	1037.10
24	1693.55	1524.69	1379.86	1255.03	1146.93	1052.87
25	1741.31	1562.20	1409.39	1278.33	1165.35	1067.47
26	1787.68	1598.27	1437.51	1300.31	1182.57	1080.99
27	1832.70	1632.95	1464.30	1321.05	1198.67	1093.51
28	1876.41	1666.30	1489.81	1340.61	1213.71	1105.10
29	1918.84	1698.37	1514.10	1359.07	1227.76	1115.84
30	1960.04	1729.20	1537.24	1376.48	1240.90	1125.77
31	2000.04	1758.84	1559.28	1392.90	1253.18	1134.97
32	2038.87	1787.35	1580.26	1408.40	1264.65	1143.49
33	2076.57	1814.76	1600.25	1423.02	1275.37	1151.38
34	2113.18	1841.11	1619.29	1436.81	1285.40	1158.69
35	2148.72	1866.46	1637.41	1449.82	1294.76	1165.45
36	2183.22	1890.82	1654.68	1462.09	1303.52	1171.71
37	2216.72	1914.25	1671.12	1473.67	1311.70	1177.51
38	2249.24	1936.78	1686.78	1484.60	1319.34	1182.88
39	2280.82	1958.44	1701.70	1494.90	1326.49	1187.85
40	2311.47	1979.27	1715.90	1504.62	1333.17	1192.46
41	2341.24	1999.30	1729.43	1513.80	1339.41	1196.72
42	2370.13	2018.56	1742.32	1522.45	1345.24	1200.66
43	2398.19	2037.07	1754.59	1530.61	1350.69	1204.32
44	2425.42	2054.88	1766.27	1538.31	1355.79	1207.70
45	2451.87	2072.00	1777.40	1545.58	1360.55	1210,84
46	2477.54	2088.46	1788.00	1552.43	1365.00	1213.74
47	2502.47	2104.29	1798.10	1558.90	1369.16	1216.42
48	2526.67	2119.51	1807.71	1565.00	1373.04	1218.91
49	2550.16	2134.14	1816 87	1570.76	1376.67	1221.21
50	2572.97	2148.21	1825.59	1576.18	1380.07	1223.34
Perpetuity	3333.33	2500.00	2000.00	1666.67	1428.57	1250.00

[No. 3.—The above Table will serve to determine the present value of an Annuity paid at the *beginning* of each year,

the present value of an annuity of £100, paid at the beginning of each year, for n years } = { the present value of an annuity for $(n-1)$ years + 100

* *Example.*—The present value at 5 per cent. of £100 a year paid at the beginning of each year for ten years = £710.78 + £100.
= £810.78.]

TABLE XII.

Shewing the Annuity which £100 will purchase for a given number of Years.

This Table will serve to determine the Annuity to be paid by a borrowing member of a Building Society in repayment of a given advance.

Years.	3 per cent.	5 per cent.	7 per cent.	8 per cent.	9 per cent.	10 per cent.
1	103.00	105.00	107.00	108.00	109.00	110.00
2	52.26	53.78	55.31	56.08	56.85	57.62
3	35.35	36.72	38.11	38.80	39.51	40.21
4	26.90	28.20	29.52	30.19	30.87	31.55
5	21.84	23 10	24.39	25.05	25.71	26.38
6	18.46	19.70	20.98	21.63	22.29	22.96
7	16.05	17.28	18.56	19.21	19.87	20.54
8	14.25	15.47	16.75	17.40	18.07	18.74
9	12.84	14.07	15.35	16.01	16.68	17.36
10	11.72	12.95	*14.24	14.90	15.58	16.27
11	10.81	12.04	13.34	14.01	14.69	15.40
12	10.05	11.28	12.59	13.27	13.97	14.68
13	9.40	10.65	11.97	12.65	13.36	14.08
14	8.85	10.10	11.43	12.13	12.84	13.58
15	8 37	9.63	10.98	11.68	12.41	13.15
16	7.96	9.23	10.59	11.30	12.03	12.78
17	7.60	8.87	10.24	10.96	11.70	12.47
18	7.27	8.55	9.94	10.67	11.42	12.19
19	6.98	8.27	9.68	10.41	11.17	11.95
20	6.72	8.02	9.44	10 19	10.95	11.75
21	6.49	7.80	9.23	9.98	10.76	11.56
22	6.28	7.60	9.04	9.80	10.59	11.40
23	6.08	7.41	8.87	9.64	10.44	11.26
24	5.91	7.25	8.72	9.50	10.30	11.13
25	5.74	7.10	8.58	9.37	10.18	11.02
26	5.59	6.96	8.46	9.25	10.07	10.92
27	5.46	6.83	8.34	9.15	9.97	10.83
28	5.33	6.71	8.24	9.05	9.89	10.75
29	5.21	6.60	8.15	8.96	9.81	10.67
30	5.10	6 51	8.06	8.88	9.73	10.61
31	5.00	6.41	7.98	8.81	9.67	10.55
32	4.90	6.33	7.91	8.74	9.61	10.50
33	4.82	6.25	7.84	8.68	9.56	10.45
34	4.73	6.18	7.77	8.63	9.51	10.40
35	4.65	6.11	7.72	8.58	9.46	10.37
36	4.58	6.04	7.67	8.53	9.42	10.33
37	4.51	5.98	7.62	8.49	9.39	10.30
38	4.45	5.93	7.58	8.45	9.35	10.27
39	4.38	5.88	7.54	8.42	9.32	10.25
40	4.33	5.83	7.50	8.39	9.30	10.23
41	4.27	5.78	7.47	8.36	9.27	10.21
42	4.22	5.74	7.43	8.33	9.25	10.19
43	4.17	5.70	7.40	8.30	9.23	10.17
44	4.12	5.66	7.38	8.28	9.21	10.15
45	4.08	5.63	7.35	8.26	9.19	10.14
46	4.04	5.59	7.33	8.24	9.17	10.13
47	4.00	5.56	7.30	8.22	9.16	10.11
48	3.96	5.53	7.28	8.20	9.15	10.10
49	3.92	5.50	7.26	8.19	9.13	10.09
50	3.89	5.48	7.25	8.17	9.12	10.08
Perpetuity	3.00	5.00	7.00	8.00	9.00	10.00

Example.—If a member borrow £100 for 10 years to be repaid by equal instalments, including principal and interest, at 7 per cent., in that time, he must pay £14.24 or nearly £14. 5*s.* a year in repayment for the same.

☞ *From this Table may also be calculated the* annual sinking fund to *accumulate to* £100 *any number of years. Ex: The sinking fund to produce* £100 *in* 12 *years at* 5 *per cent. is equal to* 1.28 less the interest, *or to* £6.28, *which is* £6. 5*s.* 8*d. nearly*

TABLE XIII.

Monthly and Quarterly payments, spread over any number of years from 3 to 21, that will repay a Loan of £100 with interest at 4, 5, 6, and 7 per cent. per annum.

Term of Years.	4 per cent.		5 per cent.		6 per cent.		7 per cent.	
	Monthly.	Quarterly.	Monthly.	Quarterly.	Monthly.	Quarterly.	Monthly.	Quarterly.
	£. s. d	£. s. d.	£. s. d.	£. s. d.	£. s. d.	£. s. d.	£. s. a.	£. s. d.
3	3 0 1	9 0 3	3 1 3	9 3 9	3 2 4	9 7 0	3 3 6	9 10 6
4	2 6 0	6 18 0	2 7 0	7 1 0	2 8 1	7 4 3	2 9 2	7 7 6
5	1 17 6	5 12 6	1 18 6	5 15 6	1 19 7	5 18 9	2 0 8	6 2 0
6	1 11 10	4 15 6	1 12 10	4 18 6	1 13 11	5 1 9	1 15 0	5 5 0
7	1 7 10	4 3 6	1 8 10	4 6 6	1 9 10	4 9 6	1 11 0	4 13 0
8	1 4 10	3 14 6	1 5 10	3 17 6	1 6 10	4 0 6	1 7 11	4 3 9
9	1 2 6	3 7 6	1 3 6	3 10 6	1 4 6	3 13 6	1 5 7	3 16 9
10	1 0 7	3 1 9	1 1 8	3 5 0	1 2 8	3 8 0	1 3 9	3 11 3
11	0 19 1	2 17 3	1 0 1	3 0 3	1 1 2	3 3 6	1 2 3	3 6 9
12	0 17 10	2 13 6	0 18 10	2 16 6	0 19 11	2 19 9	1 1 0	3 3 0
13	0 16 9	2 10 3	0 17 9	2 13 3	0 18 10	2 16 6	0 19 11	2 19 9
14	0 15 10	2 7 6	0 16 11	2 10 9	0 17 11	2 13 9	0 19 1	2 17 3
15	0 15 0	2 5 0	0 16 1	2 8 3	0 17 2	2 11 6	0 18 4	2 15 0
16	0 14 4	2 3 0	0 15 5	2 6 3	0 16 6	2 9 6	0 17 8	2 13 0
17	0 13 9	2 1 3	0 14 9	2 4 3	0 15 11	2 7 9	0 17 1	2 11 3
18	0 13 2	1 19 6	0 14 3	2 2 9	0 15 5	2 6 3	0 16 7	2 9 9
19	0 12 9	1 18 3	0 13 10	2 1 6	0 14 11	2 4 9	0 16 2	2 8 6
20	0 12 4	1 17 0	0 13 5	2 0 3	0 14 6	2 3 6	0 15 9	2 7 3
21	0 11 11	1 15 9	0 13 0	1 19 0	0 14 2	2 2 6	0 15 5	2 6 3

Note.—The Quarterly payments are three times those of the Monthly, in accordance with the custom of Societies, and, therefore, in some cases exceed the actual amount by one penny.

TABLE XIV.

OLD AGE AND ENDOWMENT TABLE.

Shewing the Amount of Savings that would be effected by accumulating £6 a-year with Interest.

At end of years.	Amount of Savings at 3 per cent.			4 per cent.			5 per cent.			At end of years.
	£.	s.	d.	£.	s.	d.	£.	s.	d.	
1	6	0	0	6	0	0	6	0	0	1
2	12	3	8	12	4	10	12	6	0	2
3	18	10	11	18	14	8	18	18	4	3
4	25	2	0	25	9	8	25	17	3	4
5	31	17	1	32	10	0	33	3	1	5
6	38	16	3	39	16	0	40	16	3	6
7	45	19	6	47	7	11	48	17	1	7
8	53	7	1	55	5	9	57	5	11	8
9	60	19	3	63	10	0	66	3	3	9
10	68	15	9	72	0	10	75	9	5	10
11	76	17	0	80	18	5	85	4	10	11
12	85	3	1	90	3	2	95	10	1	12
13	93	14	2	99	15	3	106	5	7	13
14	102	10	5	109	15	1	117	11	5	14
15	111	11	10	120	2	11	129	9	6	15
16	120	18	10	130	19	0	141	18	11	16
17	130	11	5	142	3	9	155	0	11	17
18	140	9	9	153	17	6	168	15	11	18
19	150	14	1	166	0	7	183	4	9	19
20	161	4	6	178	13	5	198	8	0	20
21	172	1	3	191	16	5	214	6	5	21
22	183	4	5	205	9	10	231	0	8	22
23	194	14	5	219	14	2	248	11	9	23
24	206	11	3	234	10	0	267	0	3	24
25	218	15	2	249	17	7	286	7	4	25
26	231	6	5	265	17	5	306	13	8	26
27	244	5	2	282	10	2	328	0	5	27
28	257	11	9	299	16	2	350	8	5	28
29	271	6	4	317	16	0	373	18	10	29
30	285	9	1	336	10	3	398	12	8	30
31	300	0	4	355	19	5	424	11	4	31
32	315	0	5	376	4	3	451	15	11	32
33	330	9	5	397	5	2	480	7	9	33
34	346	7	8	419	3	0	510	8	1	34
35	362	15	6	441	18	4	541	18	5	35

Example.—A person setting aside £6 a-year, or 10*s.* a month, for a child aged 3 years, would, with interest at 4 per cent., have accumulated £153. 17*s.* 6*d.* by the time the child attained the age of 21.

In case of previous death, or inability to continue the payments, the amount paid could be returned with interest at 3 per cent., less — per cent. towards expenses of society.

TABLE XV.

Specimen of New Deposit Tables, for Savings Banks and Industrial Associations, shewing—

1.—The Amount to which a Deposit of £100 will accumulate at the end of any number of years up to 10.

2.—The Amount to which a Deposit of £10 per annum will accumulate at the end of any number of years up to 10.

On the condition that, after the first Year, One Half (or One Fourth) of the Sum deposited may be withdrawn, *without interest*, on giving one week's notice; the balance of the Deposit and the accumulated compound Interest remaining unwithdrawable till the end of the period, unless six months' notice of withdrawal be given.

Rates of Interest £3. 10*s*. and £2. 10*s*. per cent., as explained at foot.

Deposit of £100.							Deposit of £10 per annum.						
No. of Years.	One Half withdrawable.			One Fourth withdrawable.			One Fourth withdrawable.			One Half withdrawable.			No. of Years.
	£.	s.	d.	£.	s.	d.	£.	s.	d.	£.	s.	d.	
1	103	0	0	103	5	0	10	6	6	10	6	0	1
2	106	2	1	106	12	4	20	19	9	20	18	2	2
3	109	6	5	110	1	11	31	19	11	31	16	10	3
4	112	12	11	113	13	11	43	7	4	43	2	1	4
5	116	1	9	117	8	7	55	2	2	54	14	3	5
6	119	13	0	121	5	9	67	4	9	66	13	7	6
7	123	6	9	125	5	8	79	15	4	79	0	3	7
8	127	3	1	129	8	4	92	14	2	91	14	7	8
9	131	2	1	133	14	0	106	1	7	104	16	10	9
10	135	3	11	138	2	7	119	17	10	118	7	2	10

N.B.—This Table is computed according to formulæ Nos. 1 and 13, Arts. 67, 75, in the Appendix to "*Treatise on Associations for Provident Investment*," on the supposition that the *lower* rate of 2½ per cent. is allowed on the withdrawable portion of the Deposit, and 3½ per cent. on the unwithdrawable portion, as also upon the entire amount of the interest as it accumulates from year to year.

Example: 1.—A person having deposited £100 will be entitled, at any time after the first year, to draw out £50, or £25, as the case may be, at a week's notice. Say he has retained the power to withdraw one-half, and that he exercises this power at the end of the 5th year. The amount at his credit at that moment is £116. 1*s*. 9*d*., from which deducting the £50 withdrawn, there will remain £66. 1*s*. 9*d*. to accumulate for the remaining 5 years (or until withdrawn under a six months' notice) at 3½ per cent. compound interest. If, on the other hand, the whole amount of the Deposit be left undisturbed by the Depositor during the term, then the accumulated amount at the end of 10 years will be £135. 3*s*. 11*d*.

2.—A person having deposited £10 per annum, say for 5 years, will be entitled at the end of that year to withdraw one-half or one-fourth of the aggregate of his deposits to that time (*viz*., £25 or £12. 10*s*.) as the case may be, at a week's notice; the remainder, together with the interest, being left to accumulate at 3½ per cent. till the end of the term, or until withdrawn under a six months' notice.

TABLE XVI.

Extract from the Tables of Logarithms.

Number.	Hyperbolic or Neperian Logarithms.	Ordinary Logarithms.	Number.	Hyperbolic or Neperian Logarithms.	Ordinary Logarithms.
1.01	.0099503	.0043214	47.00	3.8501476	1.6720979
1.02	.0198026	.0086002	48.00	3.8712010	.6812412
1.03	.0295588	.0128372	49.00	3.8918203	.6901961
1.04	.0392207	.0170333	50.00	3.9120230	.6989700
1.05	.0487902	.0211893	51.00	3.9318256	.7075702
1.06	.0582689	.0253059	52.00	3.9512437	.7160033
1.07	.0676586	.0293838	53.00	3.9702919	.7242759
1.08	.0769610	.0334238	54.00	3.9889840	.7323938
1.09	.0861777	.0374265	55.00	4.0073332	.7403627
1.10	.0953102	.0413927	56.00	4.0253517	.7481880
2.00	.6931472	.3010300	57.00	4.0430513	.7558749
3.00	1.0986123	.4771213	58.00	4.0604430	.7634280
4.00	1.3862943	.6020600	59.00	4.0775374	.7708520
5.00	1.6094379	.6989700	60.00	4.0943446	.7781513
6.00	1.7917594	.7781513	61.00	4.1108739	.7853298
7.00	1.9459101	.8450980	62.00	4.1271344	.7923917
8.00	2.0794415	.9030900	63.00	4.1431347	.7993405
9.00	2.1972245	.9542425	64.00	4.1588831	.8061800
10.00	2.3025851	1.0000000	65.00	4.1743873	.8129134
11.00	2.3978953	.0413927	66.00	4.1896547	.8195439
12.00	2.4849066	.0791812	67.00	4.2046926	.8260748
13.00	2.5649494	.1139434	68.00	4.2195077	.8325089
14.00	2.6390573	.1461280	69.00	4.2341065	.8388491
15.00	2.7080502	.1760913	70.00	4.2484952	.8450980
16.00	2.7725887	.2041200	71.00	4.2626799	.8512583
17.00	2.8332133	.2304489	72.00	4.2766661	.8573325
18.00	2.8903718	.2552725	73.00	4.2904594	.8633229
19.00	2.9444390	.2787536	74.00	4.3040651	.8692317
20.00	2.9957323	.3010300	75.00	4.3174881	.8750613
21.00	3.0445224	.3222193	76.00	4.3307333	.8808136
22.00	3.0910425	.3424227	77.00	4.3438054	.8864907
23.00	3.1354942	.3617278	78.00	4.3567088	.8920946
24.00	3.1780538	.3802112	79.00	4.3694479	.8976271
25.00	3.2188758	.3979400	80.00	4.3820266	.9030900
26.00	3.2580965	.4149733	81.00	4.3944492	.9084850
27.00	3.2958369	.4313638	82.00	4.4067192	.9138139
28.00	3.3322045	.4471580	83.00	4.4188406	.9190781
29.00	3.3672958	.4623980	84.00	4.4308168	.9242793
30.00	3.4011974	.4771213	85.00	4.4426513	.9294189
31.00	3.4339872	.4913617	86.00	4.4543473	.9344985
32.00	3.4657359	.5051500	87.00	4.4659081	.9395193
33.00	3.4965076	.5185139	88.00	4.4773368	.9444827
34.00	3.5263605	.5314789	89.00	4.4886364	.9493900
35.00	3.5553481	.5440680	90.00	4.4998097	.9542425
36.00	3.5835189	.5563025	91.00	4.5108595	.9590414
37.00	3.6109179	.5682017	92.00	4.5217886	.9637878
38.00	3.6375862	.5797836	93.00	4.5325995	.9684829
39.00	3.6635616	.5910646	94.00	4.5432948	.9731279
40.00	3.6888795	.6020600	95.00	4.5538769	.9777236
41.00	3.7135721	.6127839	96.00	4.5643482	.9822712
42.00	3.7376696	.6232493	97.00	4.5747110	.9867717
43.00	3.7612001	.6334685	98.00	4.5849675	.9912261
44.00	3.7841896	.6434527	99.00	4.5951199	.9956352
45.00	3.8066625	.6532125	100.00	4.6051702	2.0000000
46.00	3.8286414	.6627578			

Rem.—Hyperbolic Logarithms can be deduced from the ordinary tables of Logarithms to the base 10, by multiplying the latter by Log^e 10 or 2.302851.

See "Callet's Logarithms."—*Firmin Didot, Paris.*

TABLE XVII.

English Life Table No. 3. Interest 3 per cent.

(Calculated by the Registrar-General from the Returns for 17 Years.)

Age.	Expectation of Life.		Present Value of £100 a-year, Annuity due.		Present Value of £100 payable at Death.	
	Males.	Females.	Males.	Females.	Males.	Females.
	Years.	Years.				
0	39 9	41.9	£1915	£1985	£44.2	£42.2
1	46.7	47.3	2235	2244	34.9	34.6
2	48.8	49.4	2350	2354	31.5	31.4
3	49.6	50.2	2403	2407	30.0	29.9
4	49.8	50.4	2430	2435	29.2	29.1
5	49.7	50.3	2444	2448	28.8	28.7
6	49.4	50.0	2447	2451	28.7	28.6
7	48.9	49.5	2444	2447	28.8	28.7
8	48.4	49.0	2437	2440	29.0	28.9
9	47.7	48.4	2425	2429	29.4	29.3
10	47.1	47.7	2411	2415	29.8	29.7
11	46.3	47.0	2393	2398	30.3	30.2
12	45.5	46.2	2374	2380	30.8	30.7
13	44.8	45.4	2354	2360	31.4	31.3
14	44.0	44.7	2332	2340	32.1	31.8
15	43.2	43.9	2311	2319	32.7	32.4
16	42.4	43.1	2289	2299	33.3	33.0
17	41.6	42.4	2267	2278	34.0	33.6
18	40.9	41.7	2246	2258	34.6	34.2
19	40.2	41.0	2226	2239	35.2	34.8
20	39.5	40.3	2206	2221	35.7	35.3
21	38.8	39 6	2187	2203	36.3	35.8
22	38.1	39.0	2168	2186	36.8	36.3
23	37.5	38.3	2149	2168	37.4	36.9
24	36.8	37.7	2129	2150	38.0	37.4
25	36.1	37.0	2109	2131	38.6	37.9
26	35.4	36.4	2089	2112	39.2	38.5
27	34.8	35.8	2067	2093	39.8	39.0
28	34.1	35.1	2046	2074	40.4	39.6
29	33.4	34.5	2024	2054	41.1	40.2
30	32.8	33.8	2001	2034	41.7	40.8
31	32.1	33.2	1978	2013	42.4	41.4
32	31.4	32.5	1955	1992	43.1	42.0
33	30.7	31.9	1931	1970	43.8	42.6
34	30.1	31.2	1906	1948	44.5	43.3
35	29.4	30.6	1881	1925	45.2	43.9
36	28.7	29.9	1855	1902	46.0	44.6
37	28.1	29.3	1829	1878	46.7	45.3
38	27.4	28.6	1802	1854	47.5	46.0
39	26.7	28.0	1775	1829	48.3	46.7
40	26.1	27.3	1747	1804	49.1	47.5
41	25.4	26.7	1719	1777	49.9	48.2
42	24.7	26.0	1690	1750	50.8	49.0
43	24.1	25.4	1661	1723	51.6	49.8
44	23.4	24.7	1631	1695	52.5	50.6
45	22.8	24.1	1601	1666	53.4	51.5
46	22.1	23.4	1570	1636	54.3	52.3
47	21.5	22.7	1539	1606	55.2	53.2
48	20.8	22.1	1507	1574	56.1	54.1
49	20.2	21.4	1475	1542	57.0	55.1
50	19.5	20.8	1442	1509	58.0	56.0

TABLE XVII.—(*continued.*)

English Life Table No. 3. Interest 3 per cent.

(Calculated by the Registrar-General from the Returns for 17 Years.)

Age.	Expectation of Life.		Present Value of £100 a-year, Annuity due.		Present Value of £100 payable at Death.	
	Males.	Females.	Males.	Females.	Males.	Females.
	Years.	Years.				
51	18.9	20.1	£1409	£1476	£59.0	£57.0
52	18.3	19.4	1376	1441	59.9	58.0
53	17.7	18.8	1343	1405	60.9	59.1
54	17.1	18.1	1310	1369	61.9	60.1
55	16.5	17.4	1276	1333	62.8	61.2
56	15.9	16.8	1241	1297	63.8	62.2
57	15.3	16.2	1207	1261	64.8	63.3
58	14.7	15.6	1172	1225	65.9	64.3
59	14.1	14.9	1137	1189	66.9	65.4
60	13.5	14.3	1102	1153	67.9	66.4
61	13.0	13.8	1067	1117	68.9	67.5
62	12.4	13.2	1031	1080	70.0	68.5
63	11.9	12.6	996	1044	71.0	69.6
64	11.3	12.1	961	1008	72.0	70.6
65	10.8	11.5	927	973	73.0	71.7
66	10.3	11.0	892	938	74.0	72.7
67	9.8	10.5	859	903	75.0	73.7
68	9.3	9.8	825	868	76.0	74.7
69	8.9	9.5	793	835	76.9	75.7
70	8.5	9.0	761	802	77.8	76.7
71	8.0	8.6	730	769	78.7	77.6
72	7.6	8.1	700	738	79.6	78.5
73	7.2	7.7	670	707	80.5	79.4
74	6.9	7.3	642	677	81.3	80.3
75	6.5	6.9	614	648	82.1	81.1
76	6.2	6.6	588	620	82.9	81.9
77	5.8	6.2	562	593	83.6	82.7
78	5.5	5.9	538	568	84.3	83.5
79	5.2	5.6	514	543	85.0	84.2
80	4.9	5.3	492	519	85.7	84.9
81	4.7	5.0	470	496	86.3	85.6
82	4.4	4.7	450	474	86.9	86.2
83	4.2	4.5	430	453	87.5	86.8
84	4.0	4.2	412	433	88.0	87.4
85	3.7	4.0	394	414	88.5	87.9
86	3.5	3.8	377	396	89.0	88.5
87	3.3	3.6	361	379	89.5	89.0
88	3.2	3.4	346	363	89.9	89.4
89	3.0	3.2	331	347	90.3	89.9
90	2.8	3.0	318	333	90.7	90.3
91	2.7	2.9	305	319	91.1	90.7
92	2.6	2.7	293	306	91.5	91.1
93	2.4	2.6	281	294	91.8	91.4
94	2.3	2.4	270	282	92.1	91.8
95	2.2	2.3	260	271	92.4	92.1
96	2.1	2.2	250	260	92.6	92.4
97	2.0	2.1	241	251	92.9	92.7
98	1.9	2.0	233	241	93.0	93.0
99	1.8	1.9	224	232	93.2	93.0
100	1.7	1.8	217	224	93.1	93.3

VOLUME II.

PRINCIPLES AND PRACTICE

OF

LIFE ASSURANCE,

WITH AN

Alphabetical Digest of the Law relating thereto,

Mathematical Appendices, Tables, &c.

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NOTICE TO NEW EDITION OF VOL. II.

We have thought it desirable, in the present publication, to add to our remarks on the Law of Life Assurance, a concise statement of its principles and practice. The time cannot be far distant when the importance of our proposed Reforms in the Law will be recognised, and when the Bill for effecting them passes into an Act, but the Practice of Life Assurance itself stands very much in need of amendment. Some improvements, no doubt, have of late years been introduced, and increased facilities afforded to all (particularly the industrial classes) for making provision for their families through the medium of Life Assurance. Admitting, however, that amendments in the practice of Life Assurance have been made, there is scope for more; and future assurers will not be satisfied with any policy that is not—

1. Free from conditions restrictive of the Assured, except the due payment of the premiums.
2. Indisputable, so that no objection whatever can be raised after the policy has been issued.
3. Payable to nominee by a simple endorsement, and thus as easily transferable as a bill of exchange.

Our intention in the following pages is to show how these advantages may be safely granted by Assurance Companies, as well as to give, in the most concise and condensed form, an Encyclopædic Handy Book on the whole question.

8[4], Waterloo Place,
August, 1866.

NOTICE TO FIRST EDITION OF VOL. II.

THE main design of this publication is to illustrate and explain the objects of the Bill, we have proposed, for *enabling Policies of life Assurance to be specially secured for the Widow and Children of an Assurer by Nomination, without the necessity of a* Trust Deed, *and for rendering Policies of Assurance Assignable at Law, and that by simple* ENDORSEMENT. For the better understanding of the subject, and with the view of making some suggestions for the amendment of the Law as it bears upon Life Assurance generally, a concise *alphabetical Digest* of the leading cases, with comments upon the principles involved in and decided by them, has been added.

The work being intended chiefly for non-professional readers who may be interested in the subject of Life Assurance, and especially for Agents and Policy-holders in Life Offices, care has been taken to avoid the use of technical and scientific language, which would be essential in a purely legal work intended for the profession, but most puzzling and perplexing to the general reader.

We avail ourselves of this opportunity of acknowledging the valuable assistance we have received from our friend Mr. E. W. BRABROOK (Barrister-at-Law), of Lincoln's Inn, more particularly in analysing the decided cases, of which more than half are so recent as not to be contained in any previous Treatise on the subject.

POSTSCRIPT TO PART II.

I.—Since the following pages were printed off, the Bill to extend the provisions of the Gambling Act to Ireland has passed into law (see p. 62); not, however, without an energetic protest from the Chamber of Commerce of Dublin, which took the opportunity of urging upon the then Government our views as to Indisputability and as to the rendering of Policies assignable at Law. The following is their statement:—

"The council of this chamber have had under consideration the Bill 'To Amend "the Law relating to Life Insurance in Ireland,' which proposes to extend "to Ireland the provisions of the Act 14th Geo. III., cap. 48, 'For regu- "lating Insurances upon Lives, and for prohibiting all such Insurances, except "in cases where the parties insuring shall have an interest in the life or "death of the persons insured.' I am directed by the council to submit that "this measure is uncalled for, and is opposed to social and commercial policy. "It cannot be denied that in past times when the business of insurance was less "understood, and less carefully conducted than at present, there were many "instances of what may be termed gambling in life insurance; but the council, "many of whom are themselves directors of insurance companies, believe that "this commercial crime is now of very rare occurrence in Ireland. The "council are also of opinion that, so far from presenting additional facilities to "insurance companies for disputing liability, after they have been perhaps "many years receiving premiums, the true principle should be to impose on the "insurance company the duty of making every expedient preliminary inquiry, "and to make the policy indisputable the moment it is issued. It should never "be forgotten that policies of insurance are now, in important family and com- "mercial arrangements, a class of security to which recourse is had for the "protection of third parties in cases where no other is available, or can be "obtained; and I am respectfully to suggest that it would be contrary to public "policy, and to the strong tendency of enlightened public opinion, to sanction "any proceeding which would weaken or impair their efficiency. In the "earnest hope that you will withdraw this Bill the council refrain from offering "a suggestion, which they would feel it their duty to offer under other circum- "stances, *viz.*, that all policies on life should be made legally assignable, and the "sums recoverable at the suit of the assignees. It is a matter of notoriety that "cases have occurred where the *bonâ fide* holder of a policy of insurance, "assigned for valuable consideration, has been unfairly coerced to take out "administration to the deceased, rather than submit to unwarrantable terms "proposed by the insurance company. The council see no reason why a policy "of insurance should not be as legally assignable as a bill of lading, a bill of "exchange, or the title deeds of a landed property."

The Right Hon. J. A. LAWSON replied to this, that—

"The object of the Bill is merely to assimilate the law of Ireland to that of England, "by preventing persons from insuring lives in which they have no interest. "The necessity for this has been shown by several cases of a very fraudulent

"character which have recently occurred in Ireland, and to which the atten-
"tion of the Government was called. I venture to think that such a measure
"can scarcely be said to be 'uncalled for, or opposed to social and commercial
"policy.' With respect to the other suggestions for the general improvement
"of the law of life insurance, I am disposed to concur in them, but you will
"perceive that such changes could only be introduced in a Bill applying to the
"whole of the United Kingdom."

II.—Two important decisions have recently been given by the House of Lords. Their practical result may be stated as follows :—

1. Bankruptcy does not discharge a Debtor from his Liability to pay the future Premiums on a Policy, assigned by him as security for a Loan.—See *Metcalfe* v. *Hanson,* 22nd June 1866, 1 Weekly Notes, 250.

2. If a Policy is allowed to lapse, and a new Policy afterwards granted in lieu of it, the new Policy is not necessarily entitled to rank for Profits with those issued at the same date as the lapsed Policy. Policyholders who apply for new Policies would do well, therefore, to have them endorsed with a memorandum that they are issued in exchange for the old, and entitled to the same privileges in every respect.—See *Windus* v. *Lord Tredegar and others,* 10th July 1866, 1 Weekly Notes, 264.

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About that period various continental writers, among whom may be mentioned the celebrated Pascal, Fermat, and Huygens, published treatises on the general doctrines of probabilities, but did not touch upon the principles of the construction of Life Annuity Tables. As pioneers, however, they did good service, for they opened the way by which subsequent writers arrived at practical results.

2.—One of the earliest applications of the theory of probability, was that of determining from observations of mortality,* the average duration of human life, and the value of pecuniary interests dependent on its continuance or failure. This particular application, according to Mr. Hendriks, appears to have been first thought of, or at least attempted to be carried into practical effect, in Holland, by Hudde, and the celebrated Pensionary De Witt; but the first tables of mortality, with the corresponding values of annuities on single lives, were constructed by our distinguished countryman, Dr. Halley, and published in the Philosophical Transactions for 1693. Still, so far as the adaptation of this knowledge to the purposes of Life Assurance was concerned, the various unsound schemes which then, and for some time after, were ushered into existence, prove that its principles were but little understood. Indeed, as has been well remarked by Mr. Babbage, so little was known of the relative value of human life, at the time life assurance began to be adopted in England, that persons were indiscriminately insured at one common rate, without regard either to age or health; so that the young paid for the old, and the strong for the infirm,—a manifest injustice to the young and healthy members. Five pounds were at first demanded as the price of assuring a hundred pounds for one year on a life of any age; and, at one establishment, middle aged and old lives were not taken even on those terms. This sum was, probably, fixed upon from its appearing that the annual number of deaths in London was nearly one in twenty of the population. It must soon have occurred to those who wished to have recourse to such transactions, that the chance of a person aged twenty dying

[* Companion to the Almanac, 1838. Ency. Britt. 1856.]

within any given period, would not be so great as that of a person of forty dying within the same limit, and consequently that it was not equitable to demand the same rate of premium in both cases; and it must also have appeared, that if a table of the number of persons amongst a considerable population, dying annually at the different ages of life, could be procured, by its means the relative chances of life of persons of different ages might be assigned.

3.—It was not before the year 1780, that the science began to assume a practical form. In that year the Northampton Tables of Mortality made their appearance. They were constructed by Dr. Price, and were designated the *Northampton* Tables, from being based on the records of births and deaths found in the registers of the town of Northampton. They extended over a period of forty-six years. They were quickly used by the Equitable Society as the basis on which their calculations for assurances on lives and annuities were founded. They were also adopted by other offices, and continued to be so, for at least forty years after their introduction. They contain, however, some very serious defects. In early life they give the expectation of life too low, and at the later ages too high. This was to be expected, considering that these local observations were necessarily too confined in extent to be applicable to the accurate determination of the chances of mortality among the general population of the kingdom; and they soon became obsolete in point of time, even for the measurement of the mortality of the town or parish from the experience of which they were calculated. The Equitable Society, however, and some other offices, still continue to adopt the Northampton Tables for the insurance of lives, notwithstanding their inaccuracy* has been made evident by the results of their own experience, and notwithstanding their knowledge of this fact is made apparent by their rejection of these tables as the basis for the calculation of annuities.

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* [In 1854 we succeeded in inducing the Legislature to prohibit the use of this table in measuring life contingencies for the valuations of Ecclesiastical leases and Enfranchisements. (17 & 18 Vict., c. 116, s. 12.)—*See our Treatise on Copyhold and Church Property Enfranchisements.*]

4.—The Tables used by the generality of offices at the present day are the "Carlisle," which were formed by Mr. Milne from observations made by Dr. Heysham during the years 1779 to 1787, upon a population of about 8,000 in the town of Carlisle. The period of nine years, however, was too short to determine the average mortality of that town; the population also and the place were too small for its experience to be applicable to the whole country. These Tables represent the duration of life much more favourably than the Northampton, and are at certain ages singularly close to the results furnished by Dr. Farr, from the returns of the census of 1851; but Mr. Farren remarks with justice that the Carlisle Table of Mortality, as is sufficiently well known to all who have used it, and as will be immediately apparent to any one who will take the trouble to cast his eye down the column of "decrement," presents much irregularity. Mr. Milne, its constructor, although he admits that he distributed the numbers given by the observations among the separate years of age, by a tedious tentative process, in which he may have committed error, seems, nevertheless, to be of opinion, that the irregularities may be indications of a law of nature, resulting from our structure.

5.—From the yearly reports made to the members of the Equitable Assurance Society, the *late* Mr. Griffith Davies calculated the mortality among its members, who were select lives, and chiefly males, and this Table was confirmed by the investigations of Mr. Babbage and Mr. Gompertz. Some foreign Tables have also acquired reputation. The Tables in general use in France, until the recent ones by M. Dumont Ferrand and M. Legoyt, were calculated by M. de Parcieux. They are six in number; the first from deaths, mostly during the years 1689 to 1696, amongst the nominees of the French tontines; the second, third, fourth, and fifth, from the deaths among the monks of certain orders in Paris; and the last from the deaths among the nuns at Paris. The persons from whose mortality the last five tables were calculated lived under such peculiar circumstances, as to render the results only good as data to their own

class, and in their own time and country. The lives in the first Table were also select; and the experience deducible from them was inapplicable to the general population of France even of that period.

6.—Incorrect data, like bad principles, produce a series of evil consequences. Upon the Northampton Table the government had granted annuities to the extent of £810,000 per annum. For a life of sixty, £10. 6*s*. 3*d*. per cent. annuity was allowed, while taking the price of stock to be between 79 and 80 (which is the average of the last one hundred years) the annuity ought to have been but £8. 10*s*. 7*d*. The deferred annuities were granted on still worse terms. The late Mr. John Finlaison had the merit of calling the attention of several successive Chancellors of the Exchequer to the subject, representing that in April, 1827, this loss was advancing at the rate of £8,000 every week, and during the three previous months had exceeded £95,000. The result of this representation was an order to Mr. Finlaison, senior, to proceed to form more correct Tables, and a short time after they were completed, the evil was stopped by Act of Parliament.

7.—Mr. John Finlaison made his observations over 25,000 life annuitants, who had been registered as nominees in tontines, and who were chosen by lot from the children of the clergy and magistracy throughout the country, extending over a period of more than thirty years. His Table exhibited the expectation of life as it was in 1825, and as it was a century before that year, and discovered a very extraordinary improvement of human life in the interval, as well as a great difference in its duration between the two sexes. The duration of life in 1825, compared with what it was a century ago, was nearly as four to three, and the expectation of a female life at birth to a male as fifty-five years to fifty. Mr. John Finlaison also calculated the mortality which prevailed during the years from 1814 to 1822 amongst 52,682 Chelsea out-pensioners, and 20,210 Greenwich out-pensioners. The expectations of their lives were better than those shown by the

Northampton Table, and after fifty they were as good as those on the Carlisle Table: these lives (though many had suffered from service in foreign climes, and had received severe wounds,) being for the most part originally good, were considered by Mr. Finlaison as better than those of mechanics or labourers in general. Upon the whole the Tables thus framed by Mr. John Finlaison were valuable in general, and were certainly serviceable to the government.

8.—The Carlisle Tables, notwithstanding their irregularities, do not, as has been before observed, very greatly differ in result from the Life Tables constructed by Dr. Farr for the Registrar-General. These Tables (consisting of three) were computed from observations deduced from the records in the various parishes throughout England, and necessarily give an accurate approximation to the duration of life in this country. The first Table, called the English Life Table No. 1, was based upon one year's observation alone; No. 2, extended over a period of seven years; No. 3, distinguishes between male and female lives, and is based on the experience of seventeen years.* All the Tables, however, agree very closely.

9.—The natural desire of persons to provide, in times of comparative prosperity, against privations attendant on adverse circumstances, led to the formation of assurance companies, which were early recognised as the safest and most advantageous mode of effecting that object. The experience of more than a century and a half, and the great success of assurance institutions during that period, have not only established the soundness of the principles involved, but confirmed, beyond doubt, the fact that they offer one of the most legitimate mediums, by which careful and thrifty persons can invest their savings in such a way as to secure a large contingent profit, with the least possible risk.

* [In addition to the Tables of Mortality, based on actual experience, which we have enumerated, several formulæ have been suggested, by various investigators, as representing a general law of mortality. Of these the most worthy of remark is that originated by the late Mr. Gompertz. Some account of these theories will be found in a valuable biographical memoir of Mr. Gompertz, by Mr. M. N. Adler, a rising actuary of great ability. See the *Assurance Magazine*, April, 1866.]

When the first Life assurance office was founded at the early part of the last century, considerable distrust for a long time existed in the public mind respecting the safety of a society, which undertook to guarantee a definite large sum payable to an assurer's family, whenever he should die, in consideration of a small annual payment to be made by him during his life. But when years passed away, and the scheme so far from becoming a failure, met with extraordinary success, the feeling towards it changed, and in all directions new societies began to spring up, which sought for and soon obtained a remarkable amount of business. The foundation of every species of Assurance is the experience of the laws of average, and the object of every application of the principle is to secure the benefit of the average to the individual. Hence, while nothing is more uncertain than the duration of an individual life, nothing, it would appear, is more certain than the average life of a generation. In the same age, and in the same country, it is true, the rate of mortality may be affected by epidemics, scarcity of food, and other causes, but these influences are speedily counterbalanced: an intense vitality succeeds these periods of death, and the aberrations from the recorded laws of mortality of one period, are the measure of the counter-aberrations which mark the period following.

There can be no doubt, that one of the most happy ideas of modern times is the great discovery in social science of the mode of neutralising, by Life Assurance, the risks arising from the uncertainty of human life, by distributing them amongst large numbers. This is attained by means of the combination of several small annual sums into a whole, large enough to allow of its increment by compound interest; thus securing a future payment on account of each small annual one, much greater than the amount, which could possibly be obtained (as a rule) by any application of such small sum taken by itself, even if it were certain to be paid regularly until the end of the average term of human life. Every year, every day, the value of this idea and the extent of its applicability are becoming more and more perceptible.*

* Parliament itself has given some proof of its appreciation of the social and political advantages of Life Assurance, in the *Remission of the Income Tax* on money paid as premiums on the life of the assurer or his wife, (by s. 54 of the *Income Tax Act*, 16 and 17

10.—Upon the formation of a Life Assurance Society (assuming that a safe law of mortality has been selected), it is clear, that one of the first things to be done is to assess the rates of annual or other periodic contributions upon such a principle that not only reasonable expenses of management may be provided for, but also that every possible excess of early mortality among the members beyond the average of the whole population (according to the data by which the fundamental Table of Mortality had been constructed) may be met by a marginal fund. Hence it has been customary to charge a somewhat higher premium per cent. than that shown as necessary by the Table of Mortality; and this reasonable precaution operates without injury to those whose families benefit by the policies of assurance in case of premature death; whilst those subscribers who survive beyond the tabular average of life have a compensation by way of Bonus in case the institution meets with no greater degree of mortality than the marginal fund had provided for.

This increase to the pure premium is called the loading, and usually ranges between 20 and 30 per cent. Experience, however, has proved that in the earlier years of a society's existence the loading alone is usually insufficient to cover expenses.*

11.—The safety of a new society, professing to assure its members against the loss attending any contingency, requires either that the number of its members be at starting, so large as to provide for all

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Vict. c. 34. See Part II. p. 62,) to the extent of one-sixth of his annual income. This is actually a surrender by the State of no inconsiderable amount of present revenue in the endeavour to extend a practice considered to be valuable, not only to the individual assurer, but to the community at large.

* [The composite nature of the Premium for an Assurance Policy is understood and well illustrated by that brilliant writer, M. Edmond About, in an interesting little brochure, "*Les Questions d'Argent: L'Assurance,*" lately published by him, under the editorship of M. Eugène Reboul. M. About says:—"Quand vous placez vos biens sous la protection d'une Compagnie de capitalistes armés contre les coups du sort, vous êtes dûment averti que votre prime servira à trois choses:—

"1°.—A couvrir les sinistres qui tomberaient sur vous et sur les autres assurés. C'est la solidarité pure;

"2°.—A couvrir les frais d'une administration assez complexe; dépense rationnelle et dont la mutualité la plus désintéressée ne vous préserveraient pas;

"3°.—A enrichir très-probablement les capitalistes qui vous ont garanti la possession de votre bien."]

possible aberrations in the law by which the occurrence of the assured contingency is supposed to be regulated, or that a protective capital be paid up, or ready at call, to secure the society from inconvenience or chance of failure. In general such a capital is rarely paid up but in part, and the protection consists mainly of the personal security of a number of shareholders, collectively making themselves answerable for the engagements of the society. In cases where it is proposed to insure some new and untried risk, a sufficient paid-up capital is plainly essential. It is well known that whatever pains may be taken in such a case to procure facts and deduce proper tables, there is always a risk that the experience of the office may be at variance with the facts of the tables. When, for instance, the general conclusions, drawn from the mortality of towns, were first applied to the insurance of life, it was a risk of unknown amount, as to whether the lives of those, who would come to insure, would be of the same class as those from which the tables were made. They might turn out better, or worse. The risk has been tried, and found to be in favour of the offices; but in another speculation of another kind, the same species of risk might give a contrary result.

For the well working of a new society it is requisite, therefore, that sufficient capital be *paid up* to defray expenses and contingencies for, at least, seven years; so that no delay or inconvenience may arise to check the business. After such revolution of time, an assurance business, if it has been prudently conducted, will protect itself.

12.—The Life Assurance Offices now transacting business may be divided into two principal classes, viz., mutual and proprietary. A mutual society consists simply of a common fund, raised by the policy holders themselves out of the premiums they pay, from which the policies, as they become claims, are settled; the profits arising from the business being divided among policy holders only. A proprietary company consisted originally of a number of persons, who subscribed a capital wherewith, in consideration of the premiums paid by the assured, the directors and proprietors guaranteed to pay a certain fixed sum on the death of the persons so assured, the policy holders surrendering the advantages of participation in the

profits of the business. But this total exclusion of policy holders from participation in profits prevailed only among the earlier proprietary companies. Now, and it has been the case for many years past, most proprietary companies admit their policy holders to a very liberal participation in the profits. Companies thus constituted were said to be established on the mixed system, and they were formerly called mixed companies; but as there are few proprietary companies now which are not of a mixed character, combining the principles of mutuality in one sense, and of guarantee in the other, the distinction is superfluous.

13.—There is another medium for Life Assurance of which something should be said in this place, *viz.*:—the Government Life Assurance Department, established in 1865, in connection with the Post Office, carrying into effect the principal provisions of the Bill introduced by Mr. Whitbread in 1807, which we were the first to *recall to public attention, by our *Treatise on Savings Banks.*

The Policies granted by this Department are limited to sums between £20 and £100. The first Statement of Account has recently been made public, from which it appears that on the 31st December, 1865, 544 Policies were in existence, assuring £40,000, at annual Premiums of about £1200. This is certainly not so large a result as might reasonably have been expected, and probably arises from the unwise restrictions with which the scheme has, contrary to the best advice, been hampered. One circumstance cannot be remarked without very great regret, *viz.*:—that on these 544 Policies, the amount paid for Medical Fees appears to be only £13. 7*s.* 6*d.* If lives are accepted without examination, to save expense, that is indeed false economy;—for much more may be lost by the acceptance of deteriorated lives as good, than can possibly be saved in Medical Fees. (See Note, Part 2, p. 3.)

14.—Much has been said as to the injurious effect of so many Assurance Societies having been formed of late years, when so few really transact any large amount of business. But the mischief, if any, is confined to those societies, the non-success of which

* [In 1848, we submitted a clause for insertion in the *Friendly Societies' Bill* of that year, to enable the Government to grant Assurances up to £200, but the state of public business prevented its being then proceeded with.]

is attributable to their having been founded, either without a good connection, or with insufficient paid-up capital to defray the expenses, that are necessary to establish properly any institution of importance. All persons, whose opinions on insurance matters are worth noticing, are agreed that the field for business, as yet unknown, is so vast and increasing, as practically to leave room for many more companies than now exist, allowance being made for the great number that have lately amalgamated. Indeed, it is a well-known fact, that not much more than a quarter of a million of persons have been assured in the United Kingdom out of a population which at the present time numbers about thirty millions. This is conclusive evidence, either that the public do not yet fully understand the advantages arising from the assurance system, or that the majority of existing companies, from the manner in which they conduct their business, do not meet the practical requirements of the people.

As to the prosperity of Assurance Offices.—The position of the majority of existing Assurance societies is, indeed, satisfactory, if they be regarded only in their character as *commercial associations.* It is certain that they have met with unexampled prosperity from the precaution, which has been exercised, of charging a considerable margin in favour of the society over the mathematical value of the risk attending the assurance of any life, and from the profitable and judicious manner in which the premiums, in general, are invested. Hence it has followed as the result of the experience of upwards of a century and a-half, that no commercial undertaking has surpassed a soundly constituted assurance office in the steadiness with which its prosperity and consequent profit have increased, where judgment and care have been exercised in the management.

15.—In order that a Life Assurance Society may be successful—that is, may fulfil its promise of paying to the representatives of every life, on decease, the amount of the policy, without drawing from any other fund than the premiums received from assurers, and the interest obtained on the same—various circumstances, it is evident, must concur. These are:—

(1.) That the premiums of each member be sufficient to pay his share of the expenses of the institution, after setting aside the amount required to be accumulated according to the law of mortality.

(2.) That the law of mortality shall accurately represent—or, at least, not exaggerate—the probable future existence of the lives assured.

(3.) That there be a sufficient number of assurers in the society to form an average, and ensure the proper distribution of risks.

(4.) That the premiums be invested on such securities as shall produce at least an equal amount of interest to that involved in the tables, without danger of loss from depreciation in value when they come to be realised.

Inattention to, or inability to carry out, the above principles, has been no doubt the cause of the insolvency to which several societies have of late years been brought.

16.—There is no subject in connection with the business of a Life Assurance Society so difficult, or so little understood, as the principles upon which profits should be estimated and divided. In order to ascertain the real position of a society, periodical valuations ought to be made by some one competent to form a sound opinion on the subject. Many boards of directors are in the habit of dispensing with such valuations, too frequently contenting themselves with estimates made by subordinate officials, naturally ready to have faith in a favourable view of the concern from which they derive their means of existence. The result of this neglect is, that under delusive notions of profits, Bonuses have been frequently declared, which neither the experience of past operations, nor a judicious estimate of the contingencies affecting the future, would justify.

17.—The profits on assurance business arise from several sources, *viz.*:

(1.) From the margin or loading charged in the premiums being in excess of the net tabular rates, calculated from mortality tables.

(2.) From the deaths occurring at later periods than were anticipated producing a saving in the interest of money.

(3.) From the realization of a higher rate of interest upon investments than that on which the tables of premiums were based.

(4.) From the lapsing of the policies, or the surrender of them on terms favourable to the office.

(5.) From gains on non-participating policies.

(6.) From the amount expended in the management being lower than that provided for; and,

(7.) From the careful selection of lives.

18.—If an office require a valuation of its affairs simply with the view of determining its position, then the valuation may be made by full office premiums—that is, by the premiums actually paid by assurers—and the result will show the present value of all the premiums

receivable by the office on the policies to the end of life, as compared with the amounts payable on the policies as they become claims. But when a division of profits is contemplated, the valuation ought to be made by the net premiums, since the profits actually realised from the past payments of the assurers up to the time of valuation are alone divisible. The former method of valuation—that is, by gross premiums—would obviously contain, not only the profits realised in the past, but would absorb all the present value of the margin not yet received for profits, expenses, and contingencies in the future. From a valuation by gross premiums, therefore, there must at least be deducted the present value of the future expenses, which might be estimated from the average expenses of the five years preceding the valuation, and the reserve for future Bonuses.

19.—The following is an example, given by an experienced Actuary, of the fatal results, in a very old office, of treating as realised profits the present value of the margin in the office premiums receivable in the future :—

> "In the year 18—, the directors of the society declared a Bonus of some £300,000, no doubt imagining that the state of their finances fully warranted them in doing so: the account of the state, however, was not forthcoming afterwards, when another investigation was made anew under the auspices of regularly appointed Examiners, who reported that the Surplus fund of the society appeared to be only £44,469. 2*s.* 8*d.*, *viz.*,—

Assets . .	£3,053,069.	8*s.*	7*d.*
Liabilities .	£3,008,600.	5*s.*	11*d.*

> and that the present value, at the second investigation, of the old bonus declared, was no less than £170,529. 4*s.* 11*d.*—nearly four times the whole surplus. By the declaration of bonus in 18—, therefore, the members were actually induced to draw upon the subsequent transactions of the society to the extent of £126,060! Nor was this all:—the valuation of the Examiners on the second occasion bears internal evidence of containing the whole future profits to be expected from the older policies existing since 18—; and thus the Declaration of Bonus, besides absorbing the whole future profits of the class who were to draw it, made off with an immense sum out of the contributions of expected members and with everything in the shape of guarantee fund. The effect of this on the future affairs of the society is just what might have been anticipated: for we find that, seven years afterwards, the state of matters, according to the report of the same Examiners, stood thus :—

Assets . .	£3,780,927.	2*s.*	2*d.*
Liabilities .	£3,765,530.	6*s.*	1*d.*
Surplus	£15,396.	16*s.*	1*d.*

in which surplus was included the then present value of the whole profits to be expected from the policies current at that date; so that, besides the profit actually received between the two valuations, the entire profits on the transactions current at the latter date, and all previous accumulations, have been absorbed by this Bonus;—for the trifling surplus of £15,400 may be disregarded. Were the *yet unrealized* profits (dependent on the margin of premiums receivable in the future) to be struck off, a very large Deficit would make its appearance, instead of a surplus of £15,400.

"No one would accuse the manager and directors of this society in 18— of intentional inequity; there can be no doubt that they acted conscientiously according to their ideas and information; yet no one can deny that they committed a very serious error, and that, by holding out this large bonus, they allowed new members to become bound for, and eventually to pay it."

20.—The following Table exhibits the extent of the error committed, when the premiums paid are represented as creating large profits:—

TABLE,

Showing the amount that a net Annual Premium of £1 will assure *at the death of a person of any given age;* or, the amount to which an Annuity *due* of £1 will be equivalent by the end of the year of his death.

(3 per cent. interest, English Life Table, No. 2.)

Age	Amount.	Age.	Amount.	Age.	Amount.	Age.	Amount.
0	£43.901	23	£58.739	46	£29.643	69	£10.430
1	64.304	24	57.316	47	28.578	70	9.899
2	75.119	25	55.904	48	27.530	71	9.391
3	80.976	26	54.505	49	26.499	72	8.906
4	84.408	27	53.119	50	25.484	73	8.444
5	86.263	28	51.745	51	24.486	74	8.003
6	86.735	29	50.385	52	23.502	75	7.584
7	86.157	30	49.037	53	22.533	76	7.186
8	85.152	31	47.704	54	21.577	77	6.809
9	83.719	32	46.385	55	20.635	78	6.451
10	82.042	33	45.081	56	19.704	79	6.113
11	80.082	34	43.792	57	18.794	80	5.794
12	77.959	35	42.519	58	17.928	81	5.493
13	75.831	*36	41.262	59	17.102	82	5.208
14	73.705	37	40.021	60	16.310	83	4.941
15	71.759	38	38.798	61	15.550	84	4.689
16	69.708	39	37.592	62	14.820	85	4.452
17	67.810	40	36.403	63	14.117	86	4.229
18	66.099	41	35.232	64	13.441	87	4.020
19	64.564	42	34.078	65	12.790	88	3.824
20	63.087	43	32.943	66	12.164	89	3.640
21	61.625	44	31.825	67	11.562	90	3.467
22	60.176	45	30.725	68	10.984		

* EXAMPLE.—Suppose a Profit Policy for £1000, to be taken out at age 30, at a Premium of £24. 1*s.* 8*d.* a year, then, at age 36, the net Premium, required to meet the risk upon the life, will exceed the full office Premium.

N.B.—The reciprocal of the figures in the above Table is the Net annual premium to assure £1, payable at death.

This Table will, also, serve as a guide to the Free Policy, which might be granted instead of a Cash Surrender Value,—

By the following Rule: Multiply the office premium, being paid under the Policy, by the value given in the above Table at the present age of the life, and deduct the result from the amount assured.—Thus, for a *non-profit* Policy of £1000 taken out at age 30, at an annual premium of £22. 6*s.* 8*d.*, after ten years existence a Free Policy of £187 might be granted: and, on such an assurance, it would *never be safe* to give the privilege which has been held forth by some offices, of a Free Reversionary Policy equal to the amount of premiums paid;—while on a non-profit Policy for £1000 taken out at age 20, at an annual premium of £17. 1*s.* 8*d.*, it would be in favour of the office if the Policy were dropped at any time after more than 12 or less than 46 years' duration. See page 25, chapter 2 herein.

21.—The periods of division of profits adopted by offices vary considerably. Some divide every seven years, some every five. One, however (the Equitable), divides every ten years only; others have annual divisions. Professor De Morgan says: "The valuations should, if possible, be made yearly. No check which can be devised is so likely to be useful as yearly valuations; and it is absolutely necessary to any system which gives the real amount of profits to the assured." In this we do not concur. The fluctuations, to which Assurance Societies are subject, render an annual valuation not only misleading in respect to results of the calculations, but also morally injurious, by causing disappointment to the members, and this again reacts upon the influx of new business. No period of valuation short of five years allows sufficient time to obtain a proper average of experience.

22.—Where there is an interval of five, seven, or more years between the periods of valuation, cases will not unfrequently occur, of persons dying shortly before the period for distribution of profits, and thus, although they may have paid four years out of five, or six years out of seven, losing all claim to a share therein.

This appears to be an injustice; and in order partially to remedy it, some offices adopt a plan called the "Prospective Bonus" system, by which a portion of the profits at each valuation is set apart for addition to the Policies which become claims before the next valuation takes place, the addition being computed in proportion to the amount of premiums paid since the previous distribution took place.

23.—In our opinion, however, the payment of a Bonus to the

assured is only proper or desirable where he has paid up in *office* premiums, with interest, the amount of his policy. It is obvious that the representatives of one, who dies before he has paid in that amount, can have no right to complain, as they, at least, receive more from the society than he has contributed to it; and if it be averred, that the rate of premium charged exceeds the mathematical measurement of the contingency, the answer would be, that such margin is added partly to pay expenses, and partly to form a *fund not only for future contingencies, but, also, as a means of compensating by Bonuses those subscribers whose payments may eventually exceed the pecuniary benefit they have assured for. There is something absurd in the prevalent system, by which those, who enter a society at an age when they are calculated as likely to live a considerable number of years, and are charged in consequence but a small premium of £2 or £3 per cent. yet, on dying prematurely, leave to their families not only the amount of the policy, but a goodly sum in Bonus, out of profits, that have arisen from the subscriptions of other members, and to which they, by dying, cannot by any possibility have a rational claim. An instance occurs to our mind of a gentleman, who insured in an office in the month of April 1845, for £500, at an annual premium of £11, and was agreeably astonished to receive a circular in May of the same year, informing him that, by his payment, he had contributed to the profits of the society to such an extent that they were enabled to declare him a bonus of £10. 15*s*.

An assurance society may have made profits on the aggregate of its transactions without a particular member being in a position to say that he ought to receive a bonus; for if the question be asked, which members are entitled to allowances on account of profit, the answer can only be—those, who, in the greatest degree, have contributed to the prosperity of the association, and have not made it a loser by the contingencies of their own existence.

If things be called by their right names, and the word "profit" be used in its ordinary sense, nothing could be more untrue than that the new member, of the society we have referred to, was entitled

* [*In fact, some portion of the margin is added for the* 'moral expectation,' *that in each single case the estimate made of the* 'mathematical expectation' *may prove insufficient.*]—*(See chapter in the Mathematical Appendix on this subject.)*

to the bonus allotted to him: the real fact was, that his policy having been effected just within the close of the period of a Bonus Division, and a valuation of the society's affairs, about that time, having probably shewn profits on the aggregate, the new member was presented with a Bonus that others had contributed to create. No stronger illustration could be required of the impropriety of the present system; and much would be done to place Assurance Offices on a sound footing, if it were put an end to.

24.—When a Valuation, that has been made of the affairs of a society, shows a Balance of Assets over estimated liabilities, the rateable proportion, that belongs to all policies which have not been *paid up*, should be carried to the Guarantee Fund. As soon as such policies have ceased to exist, or have attained the required condition, the reserves, which at various times have been made for them, may be removed from the Guarantee Fund, and made available for division by way of Bonus. Those that die too soon ought to be content with their representatives being paid the amount of their assurances: those that live beyond would receive Bonuses out of the reserves in the Guarantee Fund, as a compensation for having paid during a longer term.

The above principle is eminently conducive to the *safety* of an assurance office; for all Valuations are but estimates of probabilities of the duration of lives, and although, *mathematically* speaking from Tables of Mortality, a profit may be shown, yet there is a *Moral* chance of loss by aberration, which requires a society to see out a large portion of the existence of a group of lives before it can actually *pay away* profits. It cannot by anticipation be secured that the majority of them will live up to, or over, the average expected term, or that the present profit may not be neutralized by future loss.

This plan would practically be, in the long run, more beneficial even to the assured, as a smaller Guarantee Fund would in the aggregate be required; since the Bonuses on the policies, that have ceased before their time, would merge into the general profits, and be improved with the other investments. The shares of those, who survive, would be very much larger than under the ordinary system of allotment in practice, whether applied in the form of a reversionary sum payable at death, or to the extinction of premium.

25.—*As to Increasing Bonuses.*—If the plan above recommended be objected to, as deferring too long the gratification of the eager desire of the assured to participate in the profits of a society, we would suggest the following method of apportionment, as about the next best to be adopted, *viz:*—To convert the estimated present share of each Policy in the profit shewn in the balance sheet at any valuation period, into an equivalent *Increasing Reversionary Bonus,* payable at death, proportioned to the number of years the life survives the allotment, instead of into a *Fixed* reversionary sum. The calculation would be as easy as in the method at present practised. It would be simply necessary to divide each share by the value of an increasing assurance of £1, instead of by the value of a fixed assurance of £1. In like manner, if preferred, there might be allotted, instead, an *increasing reduction of premium,* for which the only change in the calculation would be the division by the value of an *increasing* annuity *due* instead of by the value of a *constant* annuity *due* of £1. [*See the Mathematical Appendix for the Formulæ.*]

26.—Another form of Bonus division for whole Life Policies, payable at death, which was first introduced by the Briton Life Office, and has of late become exceedingly popular, is that of applying the profits to the extinction of the later Premiums on the Policy, and to making the amount payable during the Assured's lifetime, if he live to attain a calculated age. This is effected by applying the first Bonus to fix a future age at which the sum assured is to be payable, instead of waiting till the extinction of the life, and the subsequent Bonuses gradually to bring down the age of payment earlier. We have given simple formulæ for calculating divisions of Bonus on this principle in the Mathematical Appendix. It is equivalent, of course, to converting the Policy into what is called an Endowment Assurance, and it removes many of the objections to an ordinary Whole Life Policy. Messrs. Wright and Sargent, the able Insurance Commissioners of Massachusetts, have remarked with some justice that, as an average fact, substituting endowment for the insurance of the latter part of life, is substituting a good for a positive evil; that life insurance, as it exists in Whole Life Policies, is not on the whole a blessing, or that it is not worth, even in that shape, all it costs.

In the decline of life, the combined conditions of continued payment of premiums till death and the nonpayment of the sum assured till the event occurs, become exceedingly onerous, and where the income of the assured is reduced, the annual payment is sometimes impossible. In consequence of these views, the system of Endowment Assurance has received of late considerable expansion in that state: and it is clear that a system, which affords an Endowment Assurance at no greater cost than an ordinary Profit Policy, is of very great advantage. The principal practical objection is, that at the successive divisions of profit, disappointment is likely to arise from the undue expectations of the Assured, who will not see that the number of years to be taken off at each division must relatively diminish as the time of payment of the Policy approaches.

27.—A collateral subject, in which the security of a Life Assurance Office is very considerably involved, is that of the limit of risk which it is safe for the Company to undertake upon a single life. When it is not likely to have groups of lives about the same age, a lower amount of risk should be undertaken as the ages of the lives proposed are greater, so that the present values of the Moral expectation of the current risks may not be greatly unequal. In the Mathematical Appendix we have suggested a principle of calculating (in the absence of materials for accurate theoretical measurement) the relative amounts assurable at various ages, proportioned to the number of premiums that are likely to be received on each Policy.

The following Table will serve as a rough practical guide, taking a basis of £1000 at age 30, as the limit or maximum of Assurance to be kept, and shews the

Age.	Limit of Assurance Risk to be kept at each age.	Age.	Limit of Assurance Risk to be kept at each age.
	£.		£.
30	1000	60	559
35	945	65	482
40	883	70	395
45	820	75	317
50	745	80	261
55	653		

If the amount at 30 be greater, say £3000 or £5000, the corresponding amounts at the other ages will be proportionately increased. *A similar principle applies to the insurance of childrens' lives or other special risks.*

The amounts set forth in the above Table might, of course, be modified if the society obtained a large number of risks on old lives, sufficient to form of themselves an independent average; but as a general rule, it will be found that most offices receive fewer Proposals on old lives than on young ones, and this circumstance has been taken into consideration by us in recommending, for guidance in all ordinary cases, the proportions above stated. Other methods of determining the relative proportion of limits will be found in the Appendix.

Chapter II.

Applications of Life Assurance, and Practical Amendments.

1.—Life Assurance is especially useful in the following cases :—

(1.) To *Husbands and Fathers:* to make provision after their death for their Widows and Children.

(2.) To the *Young:* to make provision for themselves during their declining years.

(3.) To *Parents:* to provide Endowments for their children.

(4.) To the *Possessors of Entailed Estates:* to provide for the younger branches of their families.

(5.) In *Marriage Contracts:* to secure the terms of Settlement.

(6.) To *Creditors:* to compensate for the loss which the death of their Debtors might occasion.

(7.) To *Borrowers:* to secure in case of death a Fund to repay the Loan.

(8.) To the *Holder of a Lease dependant on a Life or Lives:* to provide a Fund to meet the Fine, Increase of Rent, or Loss of Capital, which may ensue.

(9.) To *Expectants of Property in Reversion:* to assure a portion of it against Contingency.

(10.) To *Purchasers of Annuities on the Lives of others:* to secure the Capital sunk.

(11.) To *All who have a Pecuniary Interest in the existence of a Life:* to guard that Interest from loss through death.

2.—Among the collateral purposes, to which Life Assurance may be rendered applicable, is its combination with Fidelity or Guarantee Assurance. Guarantee Societies have been established for the purpose of obviating the defects incidental to private suretyship. Instances have constantly occurred in which persons of respectability have been obliged to forego excellent situations from either the great difficulty of obtaining security, or a repugnance to place their relations or friends under the obligations involved therein. Now a Guarantee Society undertakes on the annual payment of a small sum, to make good, in case of default by fraud or dishonesty, any losses which may be sustained, to an amount specifically agreed upon, thus

obviating the necessity for private sureties, and doing away with a system which often proves prejudicial to the best interests of the employer.

A pure Guarantee Society is argued to be defective in one respect:—that it does not tend, as is the case with private suretyship, to discourage dishonesty in the employed. Persons, it is said, who would shrink from the commission of a dishonest act when their misconduct would bring disgrace and ruin upon friends and relations, would care but little as to the pecuniary loss inflicted on a Society. The union of Life with Fidelity Assurance, if it does not furnish a perfect remedy to this defect, is considered to diminish it. The Policy of Assurance, when conjoined with that of Guarantee, is made payable on the death of the Assured, but on the condition that he remain honest during life. The additional expense of the Life Policy is comparatively trifling, as two risks dependent on each other can always be assured at a cheaper rate than when taken separately. When a man takes out a Life Policy he is usually anxious to keep it on foot for the sake of his family, or for other purposes, and will not readily do that which jeopardizes its forfeiture. The union of Life with Guarantee Assurance, therefore, operates as a check to dishonesty, and gives *additional* security to employers by the *contingent* self interest involved in the Policy of Life Assurance on the part of the employed.

3.—While admitting the various uses to which Life Assurance is applicable, and the peculiar advantages which in many respects it offers for purposes of investment, the fact must not be lost sight of that the retention of them is dependent on the fulfilment of certain conditions by the assured, among the chief and most important of which is the payment at regular fixed intervals of the premium. Instances often occur where persons assured, as they advance in years, and their means of existence begin to diminish, find it impossible to continue that regularity of payment as regards the premium, which is the fundamental condition insisted upon by most offices, and in default of which forfeiture of the benefit ensues. Under such circumstances Life Assurance cannot be strictly re-

garded as a certain means of investment. It is true that when a policy has been in existence some years, it possesses a certain monetary value, and most offices are willing to purchase it. The amount given for surrender, however, is comparatively small; and even where the full office value of the policy is offered, it is in most cases no compensation for the loss of a benefit which it may have taken years of struggle and self-denial to retain. All who have had opportunities of hearing the objections most frequently urged against Life Assurance are ready to admit that this is a serious obstacle to its extension. On the other hand, it must be borne in mind that the moment a premium is paid, the company is on the risk, and may the next minute have a claim for an amount far exceeding that paid. No feeling of sympathy, therefore, with those who either lose or are obliged to surrender their policies from inability to continue their premiums, should place out of sight the fact, that the prosperity of the company would be jeopardized if the periodical recurrence of these premiums could not be calculated upon with some degree of certainty.

4.—Some persons object to invest their savings in policies of Life Assurance, because they are obliged to pay the premiums by fixed sums, and at stated intervals, contending that while one year their circumstances might enable them to pay a large amount and at a period perhaps before the premium fell due, another year they might not have it in their power to pay more than a small sum, and that at a time later than the period fixed by the office.

Again, where policies are effected on the lives of other parties (as by creditors on the lives of debtors), objection is raised, that if the creditor die before his debtor, his family may not be able to keep up the policy, and the premiums paid may be lost.

Another objection to Life Assurance arises from the apprehension, that the policy may after death be disputed on account of some error having been inadvertently made in the proposal, which forms the basis of the contract between the assurer and the assured. This feeling no doubt has deterred and does deter many from effecting assurances on their lives.

5.—These objections are not altogether groundless. Yet, although they may be to some extent obviated, they cannot be entirely removed; much has been done of late towards lessening them, and with this view the following plans were devised by us in 1846:—

1. *The Suspension Principle.*—Should the assured from unforeseen circumstances be unable to pay a premium, permission is given, on application to the directors, once (or oftener, should the value of the policy at the time of the application be sufficient), to suspend the payment. This privilege, however, is usually only granted where at least three premiums have been paid, and the policy has been taken out for the whole term of life. Interest at the rate of £5 per cent. is required to be paid annually on the suspended premiums, which remain a debt upon the policy till discharged, to be deducted from the amount assured on its becoming a claim. This regulation is a great boon to many. It has often prevented valuable policies on which large sums have been paid from being put up to auction and sold at a ruinous loss.

Instances are not wanting of the benefits conferred by the Suspension system, a system which some years back was adopted by but few offices. In 1847, among the numerous failures, a leading firm became bankrupt, and the services of its officers being no longer required, they were dismissed. One, who had been twenty years in a high confidential appointment in that firm, partook of the general misfortune. He lost thus suddenly a liberal income, relying upon the continuance of which he had effected assurances to considerable amounts in several companies. Not being able to make the renewal payments for 1847, he applied to each of the offices for permission to suspend the premium for twelve months, but the replies he received from all but one were unfavourable. All his policies, therefore, but one, dropped, and were lost to his wife and children. The other was allowed to continue in force. Within twelve months the excellence of the character he had secured by past meritorious services, added to his qualifications, brought him again into good employ, and he was enabled to keep up the suspended policy. By the rules of the other assurance offices, he could within six or twelve months have possibly revived his policies, on paying a fine for their having lapsed, *provided his health had continued unimpaired.* But, unfortunately, as so frequently happens, that health, which had been excellent some years previously when the assurances were effected, had been deteriorating for some time, and the sudden failure of the firm in 1847, with its attendant anxiety, had militated against its improvement. The medical officers could not advise their boards that the life was re-acceptable, or that the policies should be revived. He thus lost for his family, by temporary pressure arising from temporary loss of employment, in all but one solitary instance, the assurance protection which he had for many years struggled anxiously to secure for his family.

Other examples might be mentioned, such as that of an eminent contractor, whose assurances, to upwards of £38,000, were perilled in that same year by the difficulty of making the renewal payments, to meet which he was compelled to sell valuable securities at a loss;—of a private

gentleman, called upon unexpectedly to pay a large sum for the delinquency of a friend in a government situation, whose surety he had become—a sum which was equal to two-thirds of his income, and left him without the means of meeting his own usual payments;—of professional men, and others in the enjoyment of apparently average fixed incomes, who have been from temporary difficulty unable to pay up their premiums on their policies.

2. *The Free Policy System.*—By this plan, those who are desirous of discontinuing their annual premiums altogether, are allowed to surrender the policy, and receive instead of the money value another policy of reduced amount, equivalent to the premiums paid, and being free from future payments. Such Policies are called *Free Policies.* With but a few exceptions the offices do not, however, *at the time of issuing their policies,* fix the scale of reduced assurance, nor forego the arbitrary power, too often exercised, of dealing at their will with the assured, when a time of difficulty has come and he is compelled to accede to almost any terms, from being unable to keep up his payments. To guard against this it is desirable to include in the conditions of the policy some such words as the following:—

That, at any time after five premiums have been paid, the assured shall be at liberty to cease all future payments on his policy, and be considered as having purchased a reduced assurance, (payable three months after his decease,) to be estimated, according to the Table* printed on the back of the policy, by subtracting from the original amount assured that amount of assurance which the rate of periodic premiums, that he has been paying, would purchase at his advanced age, when he proposes to cease all future payments.

The principle of such a clause is this:—If, at age *a*, the cost of a policy for £1000 is £20 a-year, and, at age *b*, £35 a-year;—then reserving off the £35 in favour of the society, a margin, say, of 20 per cent. (or whatever it may be that has been charged in the annual premiums for the security and expenses of the office),—£28 a-year, at the advanced age *b*, is the *net* premium, which would assure a new policy for £1000; therefore, by rule of three, £20 at the same advanced age would assure £714. 5*s.* nearly; which is the sum that a policy for £1000, taken out at age *a*, should be diminished, if, at age *b*, the assured determine to cease his future payments,—or, the policy should be reduced to £285. 15*s.*

3. *The Deposit System.*†—To suit the convenience of parties whose incomes are liable to change, a system termed the Deposit or Accumulative system is adopted by several offices, by which a policy of assurance can be obtained commensurate with the number and amount of the deposits made, with the additional advantage to the assured of being permitted to withdraw at any time, after a few weeks' notice, the whole or part of the money deposited. Thus, so long as the money, or any part of it, remains deposited with the society, it produces a corresponding assurance effected on the life of the depositor, and entitles his family at his death to a sum of money varying with the age at which the deposit was made.

* The Table so endorsed should be one of *net* Premiums, so as to give the office a *small margin* in the calculation. (See page 14, Chapter I. herein.)

† For the Mathematical Formulæ for the Deposit System—see Appendix to our Treatise on Associations for Provident Investment, (1065 pages), 10th Edition. E

The peculiar advantages, offered by this Accumulative mode of assurance, are found to be applicable to an infinite variety of cases. For example: Parents and guardians may make provision, either for the present wants of children, or for the purpose of recovering, in the event of their premature decease, all charges incurred for their education and advancement in life. Thus, let a parent determine to lay by £50 per annum for the benefit of a child now ten years of age, and to expend £75 per annum on his education and entrance into life. By effecting an *Accumulative Assurance*, the case would stand thus:—£50 is immediately deposited for the assurance, while the £75 is devoted to the purpose of education. If death should occur in the first year, the company would pay £140, which would restore more than both premium and cost for education. On the payment of subsequent deposits of £50, the sum assured would become £279 5*s.* in the event of death during the second year; and thus with each successive payment this sum would commensurately increase, so that in the—

3rd	year it	would be	£417	3	11
4th	,,	,,	554	0	5
5th	,,	,,	690	2	2
6th	,,	,,	825	13	5
7th	,,	,,	959	18	4
8th	,,	,,	1092	6	5
9th	,,	,,	1222	19	3
10th	,,	,,	1351	14	7
11th	,,	,,	1478	10	10

showing that, in any interval from ten to twenty-one, there would have been the repayment, in the event of the child's death, of an amount exceeding *the whole of the premiums and charges for education;* and in the event of his living, either the refunding of all the premiums paid, £550, as a capital wherewith to engage in business, or the guarantee of an assurance of £1478. 10*s.* 10*d.*, increasing with every succeeding premium, if paid, and by the bonus divisions.

The deposit plan is capable of a variety of modifications according to the life contingency it is desired to meet: one extension of considerable importance is the payment to the depositor himself, during his lifetime, of a portion of the current interest on the money deposited, with the further advantage of a policy of assurance of lesser amount, secured payable to his family at his death.

Another modification of the system, not at present practised, would consist in the allowing the assured to keep up the difference between the amount of his policy, at time of withdrawal, and the sum deposited, by that annual premium payment, which would have been charged when he entered.

4. *The Transfer or Substitution System.*—A fourth improvement in the practice of Life Assurance is the Transfer or Substitution plan, by which a policy for the whole term of life is allowed to be made transferable to some other life, the substituted life thus standing, as regards the office, in the same position as the original one;—it being understood that the substituted life shall not be of greater age than the one in the policy at the time of transfer, and also in perfect health. A small fee, of proportionate amount to the sum assured, for office trouble, &c., is all the charge that need be required for this permission; the society having nothing to do

with whatever arrangements the parties concerned in the transaction may choose to make between themselves.

In the same manner, the privilege might also be extended to the holders of policies of endowment for children, or provision for old age, provided the said policies are effected on the returnable rates.

This system must be considered as furnishing a striking improvement in Life Assurance, as it removes one objection which has hitherto existed, viz., the necessity afterwards of either sacrificing at considerable loss, or of continuing a policy, which is sought for merely temporary accommodation, and which it may be subsequently, on that account, no longer desirable, or from the pressure of temporary pecuniary difficulty, convenient to keep up.

Many illustrations of its efficacy might be given, but the following examples will, perhaps, suffice:—

(1.) Suppose an officer in the army, having effected an assurance upon his life in time of peace, to be required afterwards to enter upon remote or active service. If he wish to avoid an increase of premium, and be in the full confidence of his health, he may prefer at once to give his policy to a younger brother or friend, at the death of whom the amount assured would be paid; and yet he may retain to himself, by mutual agreement, some interest in the policy so transferred.

(2.) Suppose a creditor to have effected an assurance upon the life of a debtor, as collateral security for a loan, which is afterwards paid off, so that the creditor has no longer any interest in keeping up the policy; or, suppose a person to have borrowed money on mortgage from a private individual or a society, and to have assured his life, so as to secure his family from liability for the debt, in case of his decease before he has paid it off; in both these cases the *Transfer* principle would be at once susceptible of advantageous application, as the power of transferring the assurances from their own to other lives, would allow of the policies becoming serviceable to other parties for similar commercial purposes; and the premiums paid by the original holders would thus not be entirely lost, when their desire to keep the policies up for their own respective benefit had ceased, as the holders on the substituted lives would find it advantageous to pay an equitable sum for the transfer.

5. *Assurance for Borrowers and Investors in Building Societies.* The various forms of Life Assurance which are applicable to these Societies, have been described by us at length in the earlier editions of our *Treatise on Building Societies*, to which we refer the reader. In this place, it may be sufficient to describe the following plan, which was devised by us with a view to give the Borrower in a Building Society the means of securing his family, by a comparatively small annual outlay, from the pressure of debt, in case of his premature decease:—*Temporary policies of assurance can be effected on the life of the borrower, in amount equal to the loan, and for the number of years it has to run, upon this principle,* viz.: *that at the end of each year, the assurer shall be allowed to drop so much of his policy as is equivalent to the portion of the debt cleared off in the year, and pay, consequently, each year, a diminishing premium; with the further advantage that, at the end of each year, a portion of the premiums, which have been paid on the dropped part*

of the policy (consistent with the risk incurred), shall be returned to the assured.

By a policy of this nature, the family of a borrower would be sure of receiving from the Assurance Company, in case of his death at any time, a sum in *ready money* which would suffice to pay off the remainder of the debt to the Building Society.

SPECIMEN OF RATES.

Annual Premiums to assure £100 by a temporary Policy.

Age.	For One Year.	Seven Years.	Ten Years.	Fourteen Years.
	£. s. d.	£. s. d.	£. s. d.	£. s. d.
20	0 18 10	1 0 3	1 1 3	1 2 7
30	1 4 4	1 6 2	1 7 8	1 9 6
40	1 11 7	1 14 1	1 16 7	1 18 10

6. *In some cases*, especially in the later years of the existence of a (terminating) Benefit Building Society, the family of the borrower might possibly find the society unwilling to allow them to pay off the remainder of the mortgage, by a single sum, in consequence of the probable difficulty, the building society would experience, in obtaining a reinvestment for the money at the rate of interest supposed in their calculations. Should that be likely, another policy is recommended, *by which, in consideration of a fixed diminishing annual premium paid by the borrower*, the life assurance society *will undertake to pay (should he die prematurely) the monthly instalments, for which the house or property is liable, until the mortgage be cleared off.* This policy, called the Guarantee Temporary Annuity Policy, presents peculiar advantages, as it affords additional security to the Building Society, and at the same time entirely frees the family of the borrower from the liability.

SPECIMEN OF TABLES.

GUARANTEE POLICY FOR FOURTEEN YEARS, by which an Annuity of £6 a-year, or 10*s.* a month is purchased, payable from the time of the death of the Assured until the expiration of the fourteen years.

Diminishing Annual Premiums.	Age Twenty.			Age Thirty.			Age Forty.		
	£.	s.	d	£.	s.	d.	£.	s.	d.
1st year.	0	14	0	0	18	9	1	4	6
2nd "	0	13	3	0	17	9	1	3	2
3rd "	0	12	6	0	16	8	1	1	9
4th "	0	11	7	0	15	7	1	0	3
5th "	0	10	9	0	14	5	0	18	10
6th "	0	9	11	0	13	3	0	17	3
7th "	0	9	0	0	12	0	0	15	7
8th "	0	8	0	0	10	8	0	13	11
9th "	0	7	0	0	9	4	0	12	2
10th "	0	5	11	0	7	11	0	10	4
11th "	0	4	10	0	6	6	0	8	5
12th "	0	3	9	0	5	0	0	6	6
13th "	0	2	6	0	3	5	0	4	5
14th "	0	1	4	0	1	9	0	2	3

Indisputable, Unconditional, and Transferable Policies.

6.—The foregoing are some of the improvements that have been of late years introduced, and they have, no doubt, tended in a great degree to dissipate the prejudices and objections which have been raised against Life Assurance. Yet valuable and important as most of these improvements undoubtedly are, there is still a vital defect in most policies of assurance, which can only be remedied by the principle of Indisputability. An ordinary life policy is liable to be vitiated on various grounds. Statements may be made in the proposal which after the death of the assured may be discovered to be incorrect. Such misstatements, although there may be abundant evidence to show they were unintentionally made, are sufficient, if the company choose to take advantage of them, to invalidate the policy. Again, if the assured enter the army or navy, or become a mariner, or go out of Europe, without permission having been first obtained of the directors, aud an extra premium paid—or if he commit suicide, die by duelling, or by the hands of justice, by the conditions stipulated by most companies the policy becomes null and void. Every ordinary policy, as a writer on the subject has observed,* is thus made dependent not only on the strictest compliance with every one of the many conditions annexed to it, but on the result of the strictest scrutiny of every one of the almost innumerable facts and circumstances communicated, not only by the proposer himself, but by several other persons, and the perfect agreement of all these facts and circumstances with each other, a position which impels us to the conclusion that there are few policies which would come safe out of the ordeal which the policy itself imposes. And seeing that they who are finally to determine as to the validity or invalidity of the policy are bound to decide according to the strictest rules of interpretation, without any exercise of discretion and without the dictates of fair

[* Robertson on the Nature and Value of a Life Policy.]

dealing or feelings of liberality being allowed to influence their judgment, we can only conclude that the owners of *ordinary* policies would possess an insecure and unsubstantial property, if it were worth the while of the companies to push their legal rights to the extreme.

7.—Although it is all-important to the possessor of an *ordinary* policy that the fullest and most complete inquiry should be made, and the most accurate returns be given on all the large number of particulars mentioned or referred to in the preliminaries to an insurance (for on their accuracy his ultimate payment, by the terms of the policy, is made to rest), yet, as Mr. Robertson remarks, not without justice, "misinformations, and mistakes and errors in reports, fatal to the policy, are extremely likely to occur. For while the company undertake the management of all the numerous preliminary details, they throw upon the assured the whole responsibility and risk attendant on that work being done completely, and with the utmost accuracy. They do the work, but at his risk; and he himself has no means of learning whether a great part of that work has been properly performed. So that his whole interest is staked upon the perfectness with which the officials, clerks, and others employed by the company, perform their work of investigation and scrutiny. To use an apt illustration, the policy is suspended by a chain of a vast number and variety of links of important and trivial facts and circumstances; and while the pendulum continues to move, and premiums are received, all goes well: death comes; the machinery stops; and then, and not until then, the process of thorough investigation has commenced, in order to ascertain whether every link on the chain has been of that precise shape, dimension, character, and substance, declared by the preliminary agreement to be absolutely requisite. The pendulum may have vibrated its allotted time, or some unforeseen accident may have stopped the movement; yet any—the least deviation from the strict requirements as to the shape or substance of any one link in the chain by which it was suspended, may be held destructive of the machine."

8.—The general impression is, that all offices would find it to their advantage to frame their policies so that at the end of five years (if not earlier) they may be *indisputable,* and in order to cover the risk of fraud, which is not of frequent occurrence at present, to impose an additional per centage on the premiums. They would find this

course a much wiser one than that of resorting to Law, for in most cases of past litigation it will be found that the public have displayed in favour of the family or representatives of the deceased policy-holder an unfairly adverse feeling against the offices, however just their grounds of dispute.

9.—The declaration of indisputability would lead to much increase in the effecting of assurances by timid but honest persons, who at present unnecessarily fear that in a policy they may be leaving to their families a lawsuit for a legacy. On the other hand, in an actuarial point of view, the increased risk to the company in case of fraud might easily be made a question of *average*, provided more details, than are now generally considered requisite, were demanded before treating as complete the chain of evidence, upon which the directors are to found their decision as to the eligibility of a life. Under the present system, with all the vigilance exercised by careful managers, there is some natural reliance upon the probable veracity of the referees nominated by the life; and this reliance has existence more especially in the case of policies required with speed for mortgage transactions. The nature of the extra caution required cannot at once be described; and the difficulty will lie more with country than with town proposals, from the non-appearance of the former at the head office, where the skill and experience of the principal officers would be of service in detecting unfavourable circumstances which might escape a local adviser. With an augmentation in the risk, it is possible that a slight increase might arise in the expenses to the office upon each transaction, through the necessity of obtaining some additional independent testimony as to the *past* habits of life of the proposed assured, as an adjunct to the special medical examination by the company's own officer in the locality. At present the medical examination refers mainly to the state of health at the time of the proposal. The private referees profess to give evidence as to the *past* career of the assured: but the principle of indisputability appears to demand on many points concurrent and independent testimony, which could, probably, be procured from some person of standing residing in the same locality.

10.—The increased expense, through the necessity of extended machinery, and the augmented risk of possible deception without the subsequent power of disputing, could be provided for, as we have before mentioned, by an additional and properly adjusted small margin on the premiums. The tables of offices are at present so moderate when compared with the benefits granted, as to be able to bear some addition without creating any sensible obstacles to assurance. A Proprietary office might adopt, without hesitation, the principle of indisputability; for against the increased risk, could safely be placed the probable profits from augmented business. The position of a Mutual Society, in which all the members partake of any loss through fraud or other cause, would be somewhat different, unless it be sufficiently old to have accumulated a Reserve fund for contingencies. It is probable that details would be obtained through increased investigation, and additional facts would be elicited through independent testimony, which, at present, friendship may lead a private referee to conceal. That these details might narrow the field of *acceptable* lives by suggesting hesitation in accepting them, is not likely; as, after all, the doctrine and practice of life assurance is essentially one of *average*, and the experience of offices proves that *sound* lives die relatively before their time, just as much as those which are considered doubtful.

11.—The formidable objection, that the principle of Indisputability may increase the attempts of fraudulently disposed persons to seek assurances, can only be met, and it can in our opinion be met correctly, by viewing that contingency as one of probability, and, as such, by giving to it its due estimation in fixing the degree of increase to the premiums; until a greater generality of adoption of the principle, and a more perfect system of evidence should subsequently prove the first increase to be in excess.

12.—To meet the difficulty that in granting an Indisputable and Non-conditional Policy, the company incurs a certain amount of extra risk beyond that of an ordinary policy, we have prepared the following form of policy, under which a small extra charge is made :—

Whereas.....of.....hereinafter called the Assured, hath proposed to effect an Assurance with the Society, upon the Life of..... of.....upon the terms hereinafter mentioned, and for that purpose hath made a Proposal and Declaration in writing, dated the.....One thousand eight hundred and sixty.....together with certain Statements in writing relating thereto, as the basis for a contract of Assurance:

And whereas the said Society hath enquired into and is satisfied of the correctness of such statements:

And whereas for the purpose of removing all doubts as to the validity of the Assurance to be effected on the said Proposal, the said Society hath agreed to accept from the said Assured an additional payment, beyond the ordinary Premium payable on such assurance, during the first *ten years* of the continuance thereof, as a guarantee against any additional risk incurred through the incorrectness (if any) of any of the said statements.

Now these presents witness, That We, three of the Directors of the said Society, do hereby agree with the said Assured, and do likewise order, direct, and appoint, that in consideration of the payment of the sum of.....(in which is included the said additional payment) already made to the said Society, and of the like sum to be paid on the.....in every succeeding year during the *first five years* of the continuance of this Policy, and of the sum of.....on the like day in every year during the next *succeeding five years* of the continuance of this Policy, and of the sum of.....on the like day in every year during the remainder of the life of the said.....the Capital, Stock, and Funds of the said Society shall, according and subject to all Provisions of the Deed of Settlement of the Society and the Supplemental Deeds thereof, and the Regulations duly made under the powers therein contained, stand charged and be liable to pay to the said Assured, his Executors, Administrators, or Assigns, within three calendar months after proof satisfactory to the Board of Directors of the said Society shall have been given of the death of the said..... ..the full sum of.....

And further, That this Policy shall.....entitle the said Assured or h.....Assigns to participate in the Profits of the said Society.

And further, That in consideration of such additional payment as aforesaid, the said Society will accept as true all the statements contained in the said Proposal and Declaration.

Provided always, and it is hereby expressly agreed and declared to be the true intent and meaning of these Presents,* That neither the Directors signing this Policy, nor any other Proprietor or Holder of Shares in the Capital of the said Society, shall be individually subject or liable to any claim or demand whatever in respect of this Policy, beyond so much of his or her shares in the said Capital (not subject to prior claims and demands) as shall not, for the time being, have been paid up, or according to the Provisions of the said Deeds and Regulations, be treated and considered as paid up; and that after the transfer by any Proprietor, with the approval by the Board of Directors, of his or her shares, the person to whom such transfer shall have been made, and not the trans-

* [Not necessary in a Company, the Liability of whose Shareholders is limited by Act of Parliament.]

ferring Proprietor, shall be answerable for such unpaid part of such shares:—

And further, That this Policy and the Assurance hereby made shall be subject to all regulations and provisions duly made, and from time to time in force, under or by virtue or means of an Indenture bearing date the .....day of.....being the Deed of Settlement establishing the said Society, &c., &c.

And further, That the same shall be subject to the several Regulations printed or written on the back hereof, so far as the same may be applicable, in the same manner as if they respectively were repeated and incorporated in this Policy.

In Witness whereof, We, the three Directors aforesaid, have hereunto set our hands this.....day of.....in the year of our Lord One thousand eight hundred and.....

_____

_____

_____

(Age admitted.)

13.—The following are the Regulations referred to in the Policy, which should be printed on the back of it:—

I.—The Policy will not be void if the Premium is paid within Thirty Days next after it becomes payable, although the death or other event whereon the Sum Assured becomes due, has happened before the payment of the Premium. And, if proof is given to the satisfaction of the Board of Directors, that the person or persons on whose life or lives the Policy is effected is or are in good health, the Policy may be revived at any time within six calendar months after any Premium has become due, on payment of the arrears due, with interest, and such Fine as the Board shall think reasonable, but which, in case the payment is made within *three* calendar months after the Premium has become due, shall not exceed Ten Shillings per cent. on the sum assured.

II.—If at any time when a claim is made under the Policy it is subject to any Trust whatsoever, the receipt of the Trustees or Trustee for the time being for any monies payable thereon, shall, notwithstanding any equitable claim or demand whatsoever of the person or persons beneficially entitled thereto, be an effectual discharge for the sum therein stated to be paid.

III.—Such proof shall be adduced as the Board of Directors may reasonably require, of the Death of any person on whose Death any claim is made under the Policy.

IV.—No Renewal Premium Receipts under the Policy shall be valid unless signed by Three Directors.

It will be observed that all these Regulations are in the interest rather of the assured than of the company, and that a policy in

the form foregoing would, if the Legislature adopt the suggestion contained in the second part of this work,—to render policies legally assignable and transferable by Endorsement,—strictly realise the description in the heading, being

INDISPUTABLE,
UNCONDITIONAL, and
TRANSFERABLE.

As such a Policy contains no restriction upon travelling abroad, it should not be granted to a person whose avocations make it probable that he may have to proceed to unhealthy climates, without charging a premium corresponding to the risk.

14.—One of the clauses in the foregoing form of Policy leads to the remark, that the assuring public are, probably, not aware how little practical difference there is in their position with regard to an assurance company, established under the Act of 1862 with *limited* liability, and one with *nominally unlimited* liability. In the latter case, it is usual to insert in all Policies a clause providing that claimants shall look for payment only to the funds of the company and the uncalled Share Capital, and not to the members individually.

The legal effect of the clause is set forth in Part 2, (Art. 94, p. 69). Individual Shareholders are thereby protected from proceedings against them, as such, by Policy-holders, and from calls upon them for policy monies beyond the capital subscribed. A Policy-holder in a limited company, and one in a company using this clause, are thus in precisely the same position;—their remedy being the same in both cases. The only distinction between the two companies is, that in a limited company the Shareholders are protected from having their whole private property imperilled by acts of the directors in contracting debts with outside Creditors, not Policy-holders, by borrowing money or otherwise.

CHAPTER III.

AS TO AMALGAMATIONS.

1. *Introductory Remarks.*

1.—IT has of late become the custom among Life Assurance Offices, when their business has been found to be not sufficiently extensive to render their operations profitable, nor likely to be so, to seek amalgamation with other societies whose investments and annual new premium income are large enough to justify the presumption of stability; and as few offices are insensible to the attraction of a considerable accession of business without the labour of obtaining it policy by policy, many such Amalgamations have been effected.

Already, and chiefly during the last 20 years, about 200 transfers of business have taken place, as shown by the list in the appendix to this Part, which includes, it will be seen, many Offices of great age and the highest character, such as the Amicable (established 1706); the Globe (1803); and the Albion (1805).

2.—We have already described (see p. 11) the several causes of insolvency in assurance societies. The principal cause that has led so many societies to put an end to their separate existence, with the view of avoiding ultimate insolvency, is the large proportion of Expenditure required to obtain sufficient new business for keeping up any degree of vitality in a small office.

Few societies, if any, have failed on the ground of a mere temporary excess of mortality, though that fact is sometimes erroneously put forward as the reason for amalgamation. Even the non-participating premiums of all offices are quite sufficient to cover the utmost probable aberration of mortality above the net estimated amount according to the tables. It is when the expenses exceed the margin available for them—and, in some cases, when excessive

Bonuses have been given long before they were realized—that a society finds itself unable to continue alone. With respect to this latter point, it may be remarked, that those actuaries, who authorize large declarations of bonus on the ground that the past experience of the society has been better than might have been expected, appear to be unaware of the doctrine that there exists a cycle of mortality, which may be taken at about twenty-five years, and that the death rate, which within the last few years has been very moderate in most assurance societies, appears likely to be succeeded during the present quarter of a century by a very high death rate. A disregard of the obviously true maxim, that *a Bonus ought never to be divided out of the profit supposed to have arisen from a more favourable past experience than that for which the rates of premium provide, must be caused either by fraud, carelessness, or incompetence; and those companies, who announce that their claims have been less than the expected amount, unless they retain in their hands the money so saved, are congratulating themselves upon what is really a presage of future disaster, as far as the Policies under observation are concerned. For the deaths, that have hitherto not occurred, are yet to happen, inasmuch as every death must occur at some time; and the fact that in the early years of a Company, or of a series of policies, the mortality has been less than the Tables would have allowed for, leads to the inference that in future years (as regards those policies) the deaths will exceed the expected amount to the same extent. The notion, that the lapsing of policies practically corrects this, is erroneous, for that, which theory leads us to anticipate, experience shews to be the actual result; the advantage of medical selection ceases in a very few years, and the self-selection of the Assured against the Company overbalances it—the good lives dropping their policies upon slight temptation, but the impaired keeping theirs in force at all risks, knowing them to be a property which, once lost, cannot be replaced. Reserve must, therefore, be made, not only for the deaths expected according to the "Law of Mortality," but also for the probability that the real future mortality will be greater.

* [*Assurance Magazine*, 1863, *p.* 351.]

2. *Arguments in favour.*

3.—Much may be said in justification of the practice of Amalgamation. It is now an established fact that (in the absence of widely spread class connexions) permanent public patronage and a consequent steady influx of new business can only be obtained by Societies of large incomes—whose incomes indeed do not fall below from 50 to £100,000 a year. Policies connected with family settlements, and all that lucrative class of business which Solicitors are able to introduce, are taken, almost without exception, to the larger Offices. It is felt that a great Company has a better average for the equalization of risks, and is more secure from chances of aberration, which, though rarely ruinous, are often injurious. It can hold higher sums at risk, and therefore obtains a better class of proposals than a small Office, without the necessity of covering them by re-assurance. So marked is the public preference for large companies that* "a single office of the present day receives in the course of one year a larger revenue in new premiums than the entire premium revenue which in former years many respectable offices had accumulated in the course of 16 or 20 years. A new premium revenue of £10,000 is not above the average, whilst £15,000, £20,000, and £25,000 are often heard of, and there are instances of the new premium receipts running as high as £30,000 and £33,000."

4.—Another important argument in favour of amalgamation is that arising from the diminution of expenditure, which results from the united companies being managed by a single Board, with one Staff of Officials, and a more elaborate and complete organization in division of labour, &c., than a small company is able to effect. It is true that some amount of public scandal appears to have been caused by the large expense in compensation to officials and otherwise, attending many cases of amalgamation, but it should be borne in mind that this expense is always much less than the present value of the future diminution of expenditure caused by the union, and the goodwill of the business coming over. However weak the position of individual societies may be, they become, in well-arranged amal-

* [Mr. Page Smith, *Railway Almanack*, 1866.]

gamations, much better by union; and in numerous cases a positive saving of expenditure, amounting to many thousands a-year, has been effected.

5.—An Amalgamation is sometimes objected to by the Policy-holders, but rarely on good grounds: for, by most amalgamations, they obtain the security of an increased share constituency, and of a larger business. Then, again, they have a right to expect that with less expenditure and with less relative risk, the future Bonuses will be more certain and greater in amount, and that a better Reserve Fund will be created than would have been the case if the Company to which they had originally attached themselves had continued to carry on business alone. In point of fact, in most cases of amalgamation, the selling company has usually reached a position at which its future bonuses become very problematical, and the security it offers is gradually becoming less valuable.

The best advice that can be given to a company, whose new premium income does not keep pace with the present order of things, is not to delay too long, but to sell its business or seek amalgamation while it yet retains some vitality, that is, while there is something to sell. Delay will only diminish the value of the property, and the time may come when a heavy call will have to be made upon the Shareholders, in order to effect an operation that if it had been done some years before would, instead of creating an absolute loss, have afforded them a return on the investments already made.

We recollect the case of a Society, highly respectable in its construction and principles of action, but unfortunate in its management, which, for reasons such as are above stated—more particularly the disproportionate expenditure attending a small concern—we advised should seek to unite itself with some stronger institution. An offer was made by a large and wealthy Company to undertake its liabilities, then represented by a Premium Income of £18,000 a year, in consideration of the Transfer of its Assets, which were found sufficient to allow of a return of £50 per cent. on the amount paid in by the Shareholders. Through unwise opposition on the

part of some of the Directors, who clung to their office, not seeing how precarious the tenure of it was, the negociation was broken off, and no effort was made even to re-organise the management. The result of this was that, not many years afterwards, the company found its way into the Winding-up Court, and Calls of £10 per share had to be contributed by the shareholders.

3. *Practical Remarks.*

6.—No company should take on the business of another, without causing a thorough investigation into its position to be made by persons of actuarial skill and experience. From a neglect on the part of directors to call in professional assistance in such cases, many businesses have been purchased on terms far exceeding their value. A notion at one time prevailed, that one year's purchase, or even more, might arbitrarily be given for the income of a Life Office, without regard to the number of years each policy had been in force, or to the sufficiency of the premiums charged for the risk in each case, or as to whether the class of lives was such as should be desired by the particular society, both in point of respectability and careful selection. It is evident that extreme danger is incurred by purchases made on terms so vague and uncertain.

7.—The following preliminary information should be obtained:—

1.—The Balance Sheet of the Society's Cash Liabilities and Assets to the date agreed on for the Transfer.

2.—The cost at which the New Business of the Company has been obtained.

3.—The Commissions and per centages it is under agreement to pay to its Agents and others.

4.—The Amount of Annual Salaries of the paid Agents, if any.

5.—The Agreements of all kinds, involving future payment, into which the Company has entered.

6.—Detailed particulars of the Securities on which the Assets of the Company are invested.

7.—Particulars of the Liabilities, showing the debts, the claims outstanding, &c.

8.—The proportion of the Annual or other Premiums already received, which is necessary to provide for the risks of the current year,

and other particulars which will be suggested by the circumstances of each particular case.

8.—A variety of practical considerations affect the theoretical price that might be offered for a business; the antecedents of the society, and the nature of the agencies and connections, are of obvious and great importance. Discussion of such points, however, would be too long in this place. It may be remarked, nevertheless, that in measuring the goodwill and relative prosperity of an assurance office, as shown by business transacted or revenue created, those receipts only should be treated as Income, which arise from whole life and joint life policies on the full-premium system.

Term Policies are not deemed worthy of consideration, as but little profit is found to arise from them. In like manner policies on the half-premium or increasing scales of premium are, afterwards, in too many instances, abandoned when the debt becomes an incumbrance or the increase of premium too heavy.

4. *Tables.*

9.—Before the transfer of a business takes place, three facts ought to be known: *viz.*—

(1.) What proportion of the past premiums the Society ought to have in hand.

(2.) How much of its annual income would be required in coming years to meet its existing engagements; and,

(3.) Looking to the average age of the lives assured, what amount of claims is likely to accrue from and after the year when the amalgamation is carried out.

10.—The following Table may be used for obtaining an approximate valuation of the affairs of a society, by placing the policies in successive groups according to their average standing. An allowance can be made for the probable chance each policy has of lapsing, and of its surrender value being less than the net value given in the Table. It will be noticed that it does not necessarily follow, that a greater number of premiums must be held in hand to provide for a policy on an older, than is requisite on a younger life.

The Purchasers have also to consider that many of the existing policy-holders of the company, of which they are undertaking the risks, may offer their policies for surrender, and some inconvenience

may arise from declining to meet an apparently fair demand. The very offices,—which, by making their valuations on full office premiums, show frequently a margin in the balance sheet in favour of the Society,—at the same time offer in their prospectuses, with regard to all their policies, should the Assured desire it, to give back for their surrender a price out of the past payments. They do not reflect that a contract, to get rid of which money would have to be repaid, cannot, concurrently, be treated as an Asset to the society.

11.—TABLE showing the Amount a Society should have in hand for every £1 a year of *net* premium received on a life, to meet the ultimate payment of the amount assured, according to the number of years expired since the issue of the policy: in other words,—

How much of the *net* portion of the past premiums that each assured has paid, a transferring office should have in hand to place its policies in a proper position with regard to the amalgamated society; future Expenses and Profits being supposed to be contributed out of the margin included in the premiums yet to be paid.

(English Life Law, 3 per cent.)

Age at issue of Policy.	Period of Years expired since issue of Policy.										Age at issue of Policy.
	5	10	15	20	25	30	35	40	45	50	
20	2.73	5.79	9.19	12.95	17.08	21.58	26.52	31.71	36.65	41.28	20
25	2.83	5.98	9.47	13.29	17.46	22.03	26.84	31.41	35.71	39.58	25
30	2.91	6.13	9.66	13.52	17.74	22.19	26.41	30.38	33.95	37.00	30
*35	2.97	6.22	9.78	*13.67	17.77	21.66	25.32	28.61	31.42		35
40	3.00	6.27	9.85	13.62	17.20	20.57	23.60	26.19			40
45	3.01	6.30	9.77	13.07	16.17	18.95	21.33				45
50	3.03	6.22	9.25	12.10	14.66	16.85					50
55	2.93	5.72	8.33	10.69	12.70						55
60	2.56	4.98	7.15	9.00							60
65	2.24	4.26	5.99								65
70	1.90	3.51									70
75	1.53										75

How much less than the above the purchasing company can consent to take, or in other words how much they can allow off it in the nature of goodwill, for Agencies, &c., is a matter that can only be measured according to the circumstances of each case: *but strict inquiry should be made as to what Bonuses have been allotted* or Reductions in premiums allowed.

* EXAMPLE.—If £12 a year be the office premium on a Profit Policy for £490 effected at age 35, of which £10 is the net premium; then, when it has been 20 years in existence the Society must have £136. 14*s.* in hand, out of the £240 received, towards meeting the original sum assured, exclusive of any Bonuses that may have been allotted.

12.—In respect to probable future claims, the following Table, calculated on the English Life Law of Mortality, will enable an estimate to be obtained. For example, if the present average age be 40, and the total amount assured be a million on 1000 lives—then £13,000 will be the amount that may be expected to be claimed for deaths in the year following; £13,000 in the second year, and so on; assuming the transferred policies to be kept up. Again, if the average age be older, 50, but a lesser amount £861,000 be assured, then £81,000 are the claims that may be expected in the following five years, of which £17,000 will be in the fifth year; and so on, and in like proportion if the amount assured be more or less.

The increase of the amount of claims in advancing years, has to be attended to. Thus at 70 the claims would be £28,000, double what they were at 45. [*See also Statistics, p.* 47.]

DECREMENT TABLE, *showing the Amount of Claims, that may be expected out of* £1,000,000 *assured at average age* 40, *and similarly for the amounts set down at older ages, supposing them to represent the average age of a society, and assuming all the policies to be kept up.*

Age.	Number likely to die in the PERIOD out of 1000 lives.	Number likely to die in the YEAR.	Sums to be paid for Claims during the YEAR.	Sums to be paid for Claims in the PERIOD.	Sums remaining Assured.	Requisite Income, from surviving Lives at NET Premiums of £2. 15s. per cent.	No. of Years.	Age.
40	—	—	—	—	£1,000,000	£27,500	0	40
41	13	13	£13,000	£13,000	987,000	27,142	1	41
42	13	13	13,000	13,000	974,000	26,785	2	42
43	13	13	13,000	13,000	961,000	26,427	3	43
44	13	13	13,000	13,000	948,000	26,070	4	44
45	14	14	14,000	14,000	934,000	25,685	5	45
50	73	15	15,000	73,000	861,000	23,677	10	50
55	81	17	17,000	81,000	780,000	21,450	15	55
60	95	21	21,000	95,000	685,000	18,837	20	60
65	119	25	25,000	119,000	566,000	15,565	25	65
70	137	28	28,000	137,000	429,000	11,797	30	70
75	143	28	28,000	143,000	286,000	7,865	35	75
80	129	24	24,000	129,000	157,000	4,317	40	80
85	92	15	15,000	92,000	65,000	1,787	45	85
90	47	6	6,000	47,000	18,000	495	50	90
95	16	2	2,000	16,000	2,000	55	55	95
100	2	—	—	2,000	—	—	60	100
	1000			£1,000,000				

5. *Legal Notes.*

13.—In the second part of this work, which treats of the Law of Life Assurance, we have given a digest of the legal decisions relating to amalgamations *(by way of Transfer of Business)* up to a recent date (pp. 39, 40), but it may be worth while here to state briefly the legal powers under which these transactions are usually carried into effect.

14.—The deeds of settlement of many Life Assurance Companies contain a clause enabling the directors, with such consent of the proprietors or others as is in each case provided, to transfer the liabilities of the company under its policies to another company. In this event, as it is usual in all policies to insert a clause incorporating the provisions of the deed of settlement, of the whole of which that clause is sufficient notice to the policy-holder, he would be bound by an arrangement made under the powers of the deed. It would of course be necessary, however, that the Directors should strictly comply with the provisions of the deed. Probably the strongest clause existing in any deed of settlement for the purpose of enabling a transfer of business is that which appeared in the recent case of *Re the Waterloo Assurance Company*, 1864, 33 Beavan, 542. After giving a power to dissolve, it provided that thereupon the directors were to get from another company an undertaking to pay all future liabilities, and to transfer to such company so much of the funds or property as should be agreed upon between the contracting parties as would be sufficient, with the future premiums, to enable such company to comply with its undertaking; and that the directors should make such arrangements with the said company in regard to their undertaking as they should in their discretion think fit. Upon this clause, Sir John, now Lord, Romilly, the Master of the Rolls, held that "provided the company undertaking the liabilities was satisfied, and the amount to be transferred to them arranged, the assured are bound by the arrangement, in the absence of fraud. If the assured do not choose to accept the undertaking, they cannot prove against the original company."

15.—In cases where the deed of settlement does not give any power to transfer the company's business, it has been usually thought, hitherto, impossible to effect an amalgamation without a special Act of Parliament. This, however, is a mistake. The Companies' Act of 1862 confers important powers, which apply without exception to all Assurance Companies (not having a private act) established since 1844, and may be applied to any older company by the simple process of obtaining Registration under the act of 1862. Under s. 161 of this act (which is given at length in the second part of this work, p. 39), an amalgamation can be effected upon such terms as are mutually agreed upon, by means, firstly, of registration, and then by a winding-up of the Company and a special resolution, subject to the following important qualifications:—

1. That any dissentient member may, *within seven days* from the passing of such special resolution,* require the company either to abstain from carrying it into effect, or else to buy up his interest.
2. That the Winding-up Court may, within twelve months, take the case into its own hands, and cancel the arrangement made, if it disapproves of it, but the court will not interfere should it deem the arrangement a proper one.

The method of purchasing up a dissentient member's interest is prescribed by sect. 162, and merely consists in a reference, if the parties cannot agree, to arbitration under the Companies' Clauses Consolidation Act, 1845.

* [A "Special Resolution" is one which requires a second Meeting to confirm it before it is passed. See ss. 50, 51 of the Act.]

CHAPTER IV.

VITAL STATISTICS.

1.—An accurate knowledge of the number of people inhabiting a country, and the various physical and moral conditions under which they take their places in the community, is a matter of great national importance. For the purpose of obtaining this information, certain plans have been devised in various countries by which enumerations are made at stated intervals, called censuses. When these enumerations are conducted carefully and systematically, the full development of the resources of a country, and the progress made at different periods by its inhabitants, are ascertained. The first census was made in this country in the year 1801. The return, however, even as regarded the number of the people (and it aimed at imparting no further information) was singularly defective. The succeeding returns in 1811 and 1821 were as imperfect. Indeed, it was not before the year 1831, that the operation of taking the census was reduced to anything like a trustworthy system. Then, and since that time, the Registrar-General's Reports, compiled from sources of as authentic a character as could perhaps be well obtained, have furnished reasonably accurate information, as to the population of the Kingdom, the mortality existing at different ages of Life, the causes of Death, and various other facts connected with Life and Death statistics.

2.—A Supplement to the Twenty-fifth Annual Report of the Registrar-General, contains an ingenious analysis of the average mortality per cent. which prevailed in England and Wales during the ten years ending 1860, illustrating the various influences which

operate on the mortality-experience of different ages. Thus (1), during the first 5 years of life (including still-born children*), the deaths of Males are 72 and of Females 62 in every thousand.

(2.) During the period of childhood: between 5 and 10 years of age, the rate of mortality gradually declines, and is on the average of the period 8½ per thousand.

(3.) During the next period of 5 years, from ages 10—15, which covers the age of puberty, the mortality reaches its lowest rate, being only 5 per thousand.

(4.) The rate of mortality afterwards increases rapidly :—*viz.*, from 15 to 20, it is 7 per thousand—from 20 to 25, 9 per thousand.

(5.) Of persons living between 25 and 35, 2 out of 3 are married, and the annual rate of mortality is nearly 10 in a thousand.

(6.) Between ages 35 and 45, it is 12 in a thousand.

(7.) Between 45 and 55, 18 men and only 15 women die in a population consisting of one thousand of each.

(8.) Between 55 and 65, 30 men, 27 women.

(9.) Between 65 and 75, the death rate more than doubles, and becomes for men 65, and for women 59 per thousand.

(10.) Between 75 and 85 it increases to 147 for men, and 134 for women; and after the age of 85, the average death-rate per thousand becomes 310 in males, and 290 in females.

Mr. Willich, in his valuable "Popular Tables," has published the following simple formulæ for remembering the Expectation of life at any age between 5 and 60 :—

By the Carlisle Law, the expectation is two-thirds of the difference between 81½ and the present age.

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* [Dr. Bertillon, an eminent French physician and statist, makes some just remarks on the importance of this point, in a paper lately read before the Imperial Academy of Medicine. He says :—"En France, la vie *moyenne* à la naissance, telle qu'elle convient à la periode 1840-59, est en réalite de 40.15 ans. Cependant, elle sera dite de 35.66, selon la méthode employée par beaucoup de statisticiens, et notamment par M. Legoyt dans les publications officielles (c'est l'age moyen des décédés calculé sur les *listes* mortuaires):—de 36.6, selon la méthode vantée par M. Guillard, docteur ès sciences dans sa *Démographie;* de 38, selon plusieurs, par une méthode analogue, mais que ne compte pas les mort nés (cette méthode consiste à prendre le quotient de la population par les naissances. M. Guillard comprend les mort-nés avec les naissances; les autres les negligent volontairement.) Elle sera de 41, selon la manière de Price, adoptée par M. Ch. Dupin, de l'Institut."]

By the English Life Law, the expectation is two-thirds of the difference between 80 and the present age.

Thus, as a person becomes one year older, his Expectation diminishes eight months only; and three times the difference between the expectation of life at any two ages, is equal to twice the difference between the ages.

3.—The following facts are interesting:—

(1.) In England and Wales, births are to deaths as 5 : 3.

Boys to girls born as 104 : 100.

In 1000 inhabitants in England and Wales,

35 are born,
23 die, } annually.
17 are married,

According to the 26th Annual Report of the Registrar-General of Births, Deaths, and Marriages, the marriage-rate in France is less than that of England, while in Austria it is usually higher. In 1863 the marriage-rate in England was nearly 17, in France but 16, and in Austria between 17 and 18, to 1000 living. On the other hand, the birth-rate in England is higher than in France, and less than in Austria. In 1863, the birth-rate in England was 35, in France nearly 27, and in Austria about 40. The death-rate in England is generally less than that of France. Such, however, was not the case according to the returns for 1863—being in England 23, in France 22½. The rate for Austria is always considerably in excess of that of England or France. In 1863 it was as high as 31.

In Italy the marriage, birth, and death rates were 16, 39, and 31 respectively, to 1000 persons living—the birth and death rates approximating closely to those of Austria.

4.—The following table shows the gradual increase in the Population of England and Wales:—

A.D.	Population.
1700	5,475,000
1710	5,240,000
1720	5,565,000

A.D.	Population.
1730	5,796,000
1740	6,064,000
1750	6,467,000
1760	6,736,000
1770	7,428,000
1780	7,953,000
1790	8,675,000
1801	8,872,980
1851	17,987,609
1861	20,061,173

Taking a period of ten years for the purpose of comparison with France and Austria, the estimated population of England and Wales was, in the middle of the year 1863 - - 20,554,137

Being an increase from the year 1853 - - 2,149,769

The population of France in the year 1863 was - 37,722,068

Being an increase from 1853 of - - - 1,497,068

Of Austria, in 1863, the population was - - 23,078,057

Being an increase from 1853 of - - - 1,850,127

Thus the increase of population during the ten years 1853—1863, was in England and Wales about half as much again as that of France, during the same decenniad, and about one-fifth more than that of Austria.

The population of Great Britain and Ireland was in the year 1861 28,922,434.

5.—The population of England and Wales increased from excess of births over deaths during the year 1863 by 253,580 persons, or nearly 700 per diem. In 1862, by 276,118 persons, or rather more than 756 per diem.

6.—In the year 1852, 1000 persons a-day emigrated from the country; in the year 1856, 484 a-day; in 1858, only 312. In 1863, however, the number was 614 a-day.

7.—The mortality of males is at the rate of 2.314 per cent. for the average of 26 years, 1838-63, whilst of females it is 2.145 per cent.,

which rates are to each other nearly as 108 : 100; that is, if 100 females die out of a given number of females, out of an equal number of males nearly 108 males die. The rate of mortality in England is on the average lower than that of any other country in Europe.

8.—The following is a comparison, at three selected periods, of the population of Great Britain, with the Assessments to Income and Property Tax:—

	Assessment. £.	Population. Millions.	Taxable Income to each person.
1814-15	183,147,775	13	£14·0883
1848	261,667,955	21	11·9842
1861	304,862,000	22½	13·5494

The total population of the world is estimated by an ingenious foreign statistician at 1288 millions, as follows:—

1. By race

Mongolian Race - - - - -	Millions	522
Caucasian - - - - - -	,,	369
Malayan - - - - - -	,,	200
Æthiopian - - - - - -	,,	196
American - - - - - -	,,	1
	Millions	1288

2. By religious denominations.

Christians - - - - - -	Millions	335
Jews - - - - - -	,,	5
Asiatic Religions - - - -	,,	595
Mahommedans - - - - -	,,	160
Heathens - - - - - -	,,	193
	Millions	1288

The following are the populations of some of the most important countries, according to the most recent returns:—

*Belgium		Millions	$4\frac{1}{2}$
German States		,,	$43\frac{3}{10}$
viz. :—Austria *(proper)*	Millions	13	
Prussia	,,	13	
Bavaria	,,	5	
*Hanover	,,	2	
*Wurtemburgh	,,	$1\frac{7}{10}$	
Other States	,,	$8\frac{3}{5}$	
Austrian Empire		Millions	$39\frac{1}{2}$
*Holland		,,	$3\frac{1}{2}$
*Denmark		,,	$2\frac{1}{2}$
Sweden and Norway		,,	5
Russia		,,	65
Turkey		,,	37
*Greece		,,	1
Italian States—			
*Lombardy	Millions	3	
*Venetia	,,	$2\frac{1}{2}$	
Sardinian States	,,	$5\frac{1}{2}$	
*Roman States	,,	3	
*Tuscany	,,	$1\frac{4}{5}$	
Two Sicilies	,,	9	
Spain		Millions	$16\frac{1}{2}$
*Portugal		,,	4
*Switzerland		,,	$2\frac{3}{5}$
British India		,,	180
America		,,	59
viz. :—United States	Millions	28	
*British America	,,	2	
Mexico	,,	$7\frac{1}{2}$	
Brazil	,,	$7\frac{2}{3}$	
Other States	,,	14	
*Australia and Polynesia		Millions	2

* *It is interesting to compare the populations of the countries marked thus * with that of London.*

The population of the Colony of Victoria on the 31st December 1865, according to the estimate of Mr. W. H. Archer, the Registrar-General (whose English friends will remember him as an actuary of great ability), was 626,530, being an increase during the year of 21,029. Males were to females as 4 to 3.

The population of London increased (in spite of deaths and emigration) at the rate of 42,900 souls a year, in the 20 years 1841 to 1861, partly from *excess of births over deaths*, and partly by excess of *Immigration* over *Emigration*.

The population of London was, in the year 1861, 2,803,989, *viz.*:—

†Men from 20 and upwards - - - -	726,805
Women from 20 and upwards - - -	891,125
Males from 10 to 20 - - - - -	250,748
Females from 10 to 20 - - - -	272,756
Male children from 5 to 10 - - -	149,335
Female „ „ - - -	150,924
Male children under 5 - - - -	180,893
Female „ „ - - - -	181,403
	2,803,989

The females in London are in proportion to the males as 114 : 100.

9.—According to M. Laurent, the population of Paris is 1,700,000:—*viz.*, 750,000 men, 700,000 women, and 250,000 children. Of these 400,000 live upon property, or derive a livelihood from professions or government appointments;
100,000 are in schools, hospitals, or prisons;
200,000 live by commerce;
1,000,000 by industry.

10.—The late Slave States have a population of about 17½ millions—the coloured race averaging about 34 per cent. of the Southern people:—*viz.*, South Carolina 59 per cent.; Mississippi 51; Louisiana 51; Florida 46; Alabama 45; Georgia 42; Virginia 37; North Carolina 36; Maryland 28; Texas 27; Tennessee 24; Arkansas 23; Delaware 22; Kentucky 22; Missouri 13.

† V. 26th Annual Report of Registrar-General.

11.—The following investigation published by the Post Office authorities is curious, as serving to show the very great activity in pushing business now displayed by Insurance Companies and other establishments :—

"In 1863 an account was taken of 4,000,000 letters which were posted in London, and which obviously contained circulars, and could be assigned to various trades and societies in proportions which were exhibited in a table at page 28 of the Tenth Annual Report of the Postmaster-General. In 1864 a similar account was taken of 4,600,000 letters posted in London, and obviously containing circulars.

Of these circulars there were transmitted—

	In 1863.	In 1864.
By Drapers - - -	1,690,000	1,780,000
By Railway Companies -	348,000	404,000
By Insurance Companies -	292,000	388,000
By Wine Merchants -	101,000	386,000
By Charitable Institutions	307,000	261,000
By Publishers & Booksellers	58,000	189,000
By Lottery Offices -	141,000	169,000

In addition to the circulars which were transmitted in letters, largely increased numbers were in 1864 transmitted by the book post. During that year it was observed that—

There were posted in London—	Book Circulars.
By Railway Companies - - - -	316,000
By Drapers - - - - - -	282,000
By Charitable Institutions - - - -	279,000
By Building and Mining Companies - -	210,000
By Wine Merchants - - - - -	197,000
By Medical Men and Dentists - - -	177,000
By Insurance Companies - - -	113,000
By Tailors - - - - - -	108,000"

CHAPTER V.

THE TRUE LAW OF SICKNESS IN FRIENDLY SOCIETIES.

1.—In attempting to determine the *Law of Sickness prevailing among the members of Friendly Societies, almost all investigations have produced unsatisfactory results, and presented discrepancies of a singular character, from the want of an accurate and uniform definition of wherein "sickness" consists. As we have said elsewhere —the word "sickness" is itself rather unfortunate, as that which is medically so described is not the precise risk assured against by Friendly Societies.

What the members seek to provide for is "*temporary inability to labour,*" whether arising from disease or accident, and whether necessitating confinement to the house or the sick bed, or only preventing the continuance of their avocations. Now in practice it is found that certain degrees of ill health do not really produce immediate inability to work. Medical men affirm "that labourers, *who have not a Friendly Society to fall back upon,* often go about their employment with disease of the heart, tubercles in the lungs, and

* [We have thought it desirable to add to this Part a Chapter on the Law of Sickness in Friendly Societies, extracted from *Part* 3 of our larger *Treatise on Associations for Provident Investment*, 10*th Edition*, inasmuch as the true appreciation of the principles here laid down is a vital necessity to those institutions, which are the Assurance Societies of the Industrial Classes. As the learned Registrar, Mr. Tidd Pratt, has remarked with justice, in his admirable lecture on the subject, provision should be made in the rules that nothing but sickness in the true sense of the word—that is sickness incapacitating from labour and requiring constant medical treatment, and of limited duration, as contra-distinguished from chronic ailment or disease, which is inveterate or of long continuance and mere decrepitude —should be provided for; and that slight paralysis, blindness, mental disorder, or senile infirmity, should not entitle a member to sick relief from his society. If there were not so many friendly societies in which all the members pay the same amount of contribution it could scarcely be imagined that there could be a question as to the desirableness of having the tables of payments graduated according to age.]

other disorders of considerable severity. Among 120 Cornish miners in actual work, it was ascertained that only 63 had good health :—the remainder being all the time suffering from incipient serious maladies. Among other classes of operatives, it has been also ascertained that, favoured by the inspector or foreman of the works, men really in bad health, *who have no sick money to draw,* do not always find it necessary to go on the sick list :—*i.e.,* their labour is mitigated without their stopping off duty."

2.—The theory adopted by Mr. Charles Ansell, in the inquiries set on foot by him about the year 1828, at the instance of the Society for the Diffusion of Useful Knowledge, does not, to a satisfactory extent, tend to the distinction of Friendly Society "sickness" from medical sickness, and probably this gave rise to the opinion expressed by him twenty years later, in 1848.—Other eminent Actuaries, in extensive contributions to the subject, have set forth the results of a variety of investigations, from which Tables are deduced, providing for "permanent" as well as "temporary" inability to labour. The data of such Tables, however, were not confined to societies submitted for actuarial investigation, but, on the contrary, in one case, procured promiscuously from managers by a well-intended offer of prizes. Hence, there was not sufficient security for accuracy in the materials furnished, since no result affecting any particular society could arise from them, as would have been the case had they been extracted from its books for the purpose of a valuation, upon which an Actuary was to found a report.—Mr. Alexander Finlaison, convinced that some definition of Sickness must be adopted, states that, in making his calculations,—

"The cases of superannuation were carefully separated from the mass, and subjected each one to a rigid scrutiny, to determine whether it was a case of chronic sickness, or a case of superannuation, in the sense of retirement on a pension for old age."

3.—The following *Definition of Sickness* in relation to the "ability to labour" is given by a high medical authority :—all sickness, being either acute or chronic, recoverable or irrecoverable, no attack of

acute *recoverable* sickness ever lasts longer than from six weeks to three months, and chronic recoverable sickness no longer than twelve months. Chronic irrecoverable sickness may therefore be held to be that which exceeds one year, or which a medical man from the nature of the case should certify to come under that denomination. On this point, the calculations of the Highland Society went to show that, in all ages under 70, 20 per cent. of the inability to labour was "bed-fast," 50 per cent. "walking," and 30 per cent. "permanent."*

4.—In accordance with the valuable suggestion of Mr. Ansell that information, to be used as the basis of a model law of sickness, should be of a voluntary character, and procured from but 100 or 200 societies, under such circumstances as would offer a guarantee for its correctness, we have, in order to test the views taken by him, caused to be analysed the result of our own experience in connection with a great variety of societies, whose affairs have been officially laid before us or the Friendly Societies' Institute, taking care to limit the definition of sickness to the inability to continue labour, and comprehending under the denomination of "chronic," that which after a sufficiently long duration might and should be treated as irrecoverable.

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* [In further illustration of this, we give, from the investigations of Dr. Basham of Westminster Hospital on one form of disease, the following particulars:—

	Number of Cases of all Diseases, including Accidents.	Number of Cases of Paralysis of all forms.			Proportion per cent. of cases of Paralysis to all Diseases.
		Males.	Females	Total.	
St George's Hospital	20,646	255	166	421	2·0391
Westminster Hospital	15,653	—	—	274	1·7504
Total	36,299	—	—	695	1.9147

It will be observed that the number of males attacked with paralysis is to the number of females nearly in proportion of 3 to 2. The *average age of attack* was as follows:—

Males - - - - -	40.470 or 40½ years nearly.
Females - - - -	38.000 or 38 „
Irrespective of Sex - -	39.496 or 39½ „]

5.—Our observations have led us to the discovery of what may be termed the *True Law of Sickness.* It would seem clear—and in this the table of Mr. A. Finlaison affords striking confirmation—that the degree of inability to labour at various ages follows a simple natural law, which may be expressed as follows :—

1°.—That, from about the age when infantile diseases are past, and the nature of the constitution of the individual is becoming more declared,—at age 15,—there is a certain *constant minimum rate of Sickness per annum,* to which human beings (on the average of a large number of lives) are subject at every period of life, and that this rate depends upon the race, climate, &c., and, as far as observations in the United Kingdom go, seems to be between the limits of *five* and *seven* days' sickness per annum.

2°.—That, at each age, every individual is exposed, according to his occupation, rank of life, &c., to

An excess of sickness, over such constant sickness,	increasing with / his years and / equal to	*the sum of the excesses in the 5th and 10th years preceding.*

By way of illustration, in the class of labour referred to in the subjoined Table, the constant is $6\frac{1}{8}$ days, and the rate per annum of sickness

at age 20, $6\frac{57}{100}$ *days (nearly) or* $\frac{37}{100}$ *of a day excess over the constant ;*

at age 25, $6\frac{60}{100}$ *days, or* $\frac{2}{5}$ *of a day excess over the constant.*

The excess, therefore, at age 30, is the sum of these excesses, or $\frac{77}{100}$ of a day. This, added to the constant, gives the rate of sickness $6\frac{97}{100}$ days: and so for succeeding years.

In the Mathematical Appendix at the end, we have shown that the preceding law may be expressed in another form, as follows :

The difference between the rate of sickness at any age and that 5 years below,	equals	*the difference between the rates of sickness for 5 and 15 years younger than the given age.*

For example :—

The difference between the rates of sickness for ages 35 and 30,	equals	*the difference between those for ages 30 and 20.*

6.—With this new law—the truth of which seems beyond dispute—societies, when looking at the probable sickness in the future, instead

of relying upon the results of other associations, as set forth in published tables, for an estimate of what they might themselves anticipate, may correct it by a comparison with their own past experience: the only point to be guarded against being that, if they have had too low a rate of sickness in former years, arising from a favourable aberration, (which could be tested by a comparison with the standard table for their class or locality), they would have to make an addition to the probable rate during future quinquennial periods.

7.—*As to Recoverable Sickness.*—This law bears, in the case where Irrecoverable Sickness is *excluded*, a remarkably close relation to Mr. A. Finlaison's results, in the case of the "Average Sickness per annum to each Person in Friendly Societies, in England and Wales, adjusted by taking the average of each five years, for the middle year of each five." In the following Table, we have placed Mr. A. Finlaison's by the side, and it will be seen that they agree within a decimal fraction:—

(Report of 16th August, 1853. Tables, p. 3.)

Age.	By New Law.	Government Returns, 1853.
	Constant, 6·20	
15	6·23	6·21
20	6·57	6·88
25	6·60	6·83
30	6·97	6·91
35	7·37	7·14
40	8·14	8·21
45	9·31	9 34
50	11·25	11·49
55	14·36	13·95
60	19·41	18·73
65	27·57	27·36

This table includes the sickness of those that die under a year's illness, and of those that recover.

8.—*As to General Sickness, including Irrecoverable Cases.*—The

following are the corresponding rates of sickness according to the new Law, when all cases of inability to labour are provided for:—

Age.	Average Sickness per annum to each person, in days.
	Constant, 6·20
15	6·38
20	6·88
25	7·06
30	7·74
35	8·60
40	10·14
45	12·54
50	16·48
55	22·82
60	33·10
65	49·72
70	76·62
75	120·14
80	190·56
85	304·50
	becoming permanent soon afterwards.

9.—*As to Rates of Premium.*—To determine the proper rates of subscription to be charged by provident associations, the question of Mortality has also to be considered; but no law, deduced from Friendly Societies' experience, can be depended upon, for the reason laid down by Mr. A. Finlaison in his Second Report, *viz.*, that numbers of members retire from each society before death. In all *mortality* Tables calculated from Friendly Societies' Returns, through a disregard of this fact, as the late Mr. Griffith Davies said in his evidence in 1848, "man is made almost immortal." Hence, corrections have to be applied from the returns of the Registrar for the general population.

It is evidently true, and follows from our Law of Sickness, that considerably more must be paid by each subscriber than the actual average benefit received by him in the early years of membership. In other words if 100 persons have together 600 days' sickness in the first year of their membership, their aggregate subscriptions must be considerably higher than the 600 days' pay. It is not sufficient that the society should pay its way, and that the claims for sickness should be not more than the total premiums received, but a margin must remain to be invested as a provision for future years.

APPENDIX TO PART I.

List of Offices that have Amalgamated by Transfer of Business.

(The figures of years denote the date of cessation of the separate existence of each Office.)

With *Accidental Death.* (4).

1.—1857. Travellers and Marine.
2.—1858. Maritime Passengers.
3.—1859. British Nation Accidental.
4.—1859. Marine and General Travellers.

With *Albert.* (30).

5.—1838. Freemasons.
6.—1846. Preceptors.
7.—1850. Independent (per Times).
8.—1854. Oak Mutual (per London and County).
9.—1855. Official and General (per National Guardian).
10.—1856. Beacon.
11.—1856. Falcon (per Bank of London).
12.—1856. Durham and Northumberland (per Bank of London).
13.—1856. United Homœopathic (per Kent Mutual).
14.—1857. Times.
15.—1857. London and County.
16.—1857. National Guardian.
17.—1857. Anchor (per Bank of London).
18.—1857. National Provincial (per ditto).
19.—1857. Empire (per Family Endowment).
20.—1857. English Provident (per Kent Mutual).
21.—1858. Merchants and Tradesmens (per Bank of London).
22.—1858. Saxon (per Bank of London).
23.—1858. Bank of London.
24.—1860. London and Continental (per St. George).
25.— New Oriental (per Medical Invalid).
26.—1861. Agra (per Medical Invalid).
27.—1861. Medical Invalid.
28.—1861. Kent Mutual.
29.—1861. Family Endowment.
30.—1861. St. George (per Metropolitan Counties).
31.—1862. Metropolitan Counties (per Western).
32.—1862. Manchester and London (per Western).
33.—1865. Western.
34.—1865. Laudable.

With *Alliance.* (3).

35.—1849. Insurance Company of Scotland.
36.— Sheffield.
37.—1850. Suffolk and General Life Assurance.

With *British Prudential.* (3).

38.—1860. British Industry.
39.—1865. Consolidated.
40.—1865. London and Westminster, No. 2.

With *Briton.* (11).

41.—1840. Standard of England. (per Britannia).
42.—1843. South of England (per ditto).
43.—1844. London and Westminster, No. 1 (per ditto).
44.—1854. Halifax (per Unity).
45.—1854. Trafalgar (per Unity).
46.—1857. Brunswick.
47.—1858. Medical and Legal (per New Equitable).
48.—1862. New Equitable.
49.—1862. Unity.
50.—1865. Britannia.
51.—1866. Indisputable of Scotland.

With *Church of England.* (1).

52.—1859. Schoolmasters.

With *City and County.* (1).

53.—1863. World.

With *City of Glasgow.* (1).

54.—1847. Mutual Accumulative.

With *Clerical, Medical, and General.* (8).

55.—1828. Herts and Cambridgeshire.
56.—1829. Berks and Gloucestershire.
57.—1840. Leicestershire.

With *Colonial.* (1).

58.—1852. East of Scotland.

With *Eagle.* (19).

59.—1841. United Mercantile (per National Mercantile).
60.—1847. Mariners and General.
61.—1848. Protector.
62.—1851. Peoples (per City of London).
63.—1853. County Herts (per City of London).
64.—1855. Mentor.
65.—1855. Protestant (per City of London).
66.—1856. Palladium.
67.—1856. Deposit and General (per City of London).
68.—1857. Indisputable.
69.—1857. London Mutual.
70.—1857. Alfred.
71.—1857. Albion.
72.—1857. Observer (per City of London).
73.—1857. Absolute (per City of London).
74.—1858. Achilles (per City of London).
75.—1859. City of London.
76.—1866. National Mercantile.
77.—1866. Solicitors and General.

With *Equity and Law.* (1).

78.—1850. Etonian.

With *European.* (38).

79.—1849. Tontine (per Engineers).
80.—1854. United Guarantee.
81.—1855. Industrial and General.
82.—1855. Accumulative (per Anglo Australian).
83. 1856. Athenæum.
84.—1856. United Homœopathic (per English Provident).
85.—1856. Age (per Engineers).
86.—1856. English and Cambrian (per English Widows' Fund).
87.—1857. Prince of Wales.
88.—1857. United Mutual.
89.—1857. United Service.
90.—1847. Diadem (per British Provident).
91.—1857. General Indemnity (per English Widows' Fund).
92.—1857. Catholic, Legal, and General (per Phœnix).
93.—1857. British Shield (per London and Provincial Provident).
94.—1858. European, No. 1.
95.—1858. Anglo-Australian (per British Provident).
96.—1858. Engineers (per English and Irish Church).
97.—1858. Householders (per ditto).
98.—1858. Commercial (per English Widows' Fund).
99.—1859. British Provident (per British Nation).
100.—1859. Magnet (per Waterloo).
101.—1880. Phœnix (per British Nation).
102.—1860. India and London.
103.—1860. British Commercial (per British Nation).
104.—1860. English Widows' Fund (per ditto).
105.—1861. London and Provincial Provident (per ditto).
106.—1861. Life Assurance Treasury (per Waterloo).
107.—1861. National Assurance and Investment (per Waterloo).
108.—1861. Professional.
109.—1861. English and Irish Church (per British Nation.)
110.—1862. British Guarantee.
111.—1862. Waterloo (per British Nation.)
112.—1863. London Equitable (per British Nation).
113.—1863. Wellington, (per British Nation).
114.—1864. Mercantile Union.
115.—1865. British Nation.

With *Financial.* (2.)

116.—1865.—County Life (per National Standard.)
116*a*.—1866.—National Standard.

With *Friend in Need.* (1).

117.—1864. City and County Accidental.

With *General.* (2).

118.—1857. British Amicable
119.—1857. British Empire, Fire.

With *General Provident.* (1).

120.—1864. Confident.

With *Great Britain.* (1).

121.—1844. Achilles

With *Guardian.* (3).

122.—1826. Commercial Insurance, Ireland.
123.—1862. Promoter.
124.—1863. Westminster Society.

With *Imperial.* (1).

125.—1844. Hope.

With *Lancashire.* (1).

126.—1853. British.

With *Law Property.* (3).

127.—1856. Saxon (per Era).
128.—1858. British and Foreign Reliance.
129.—1858. Era.

With *Law Union.* (4).

130.—1854. Ægis (per Mitre).
131.—1854. Hope (per Mitre).
132.—1857. Cambrian (per Mitre).
133.—1860. Mitre.

With *Life Association of Scotland.* (2).

134.—1848. Scottish Life and Guarantee (per Mercantile).
135.—1851. Mercantile.

With *Liverpool and London.* (14).

136.—1845. British Empire (per Monarch).
137.—1846. London, Edinburgh, and Dublin.
138.—1847. Sheffield and Rotherham, (per North of England).
139.—1857. Licensed Victuallers (per Monarch).
140.—1857. Monarch.
141.—1858. Bank of London, Fire.
142.—1858. North of England, Life.
143.—1858. Defender (per Leeds and Yorkshire).
144.—1860. Equitable Fire (per Unity).
145.—1862. Globe.
146.—1862. Unity Fire.
147.—1864. Leeds and Yorkshire.
148.—1864. Hants, Sussex, and Dorset.
149.—1864. Sheffield Fire.

With *London Assurance Corporation.* (1).

150.—1857. Asylum.

With *London Life Association.* (1.)

151.—1853. Commercial and General.

With *Midland Counties.* (1).

152.—1859. Kent Mutual Fire.

With *National of Ireland.* (2).

153.—1826. Irish Alliance.
154.—1839. Hibernian.

With *North British.* (5).

155.—1856. Morayshire.
156.—1860. Newcastle-upon-Tyne.
157.—1862. Mercantile.
158.—1862. United Kingdom.
159.—1865. Volunteer.

With *Northern.* (3).

160.—1848. Scottish Freemasons.
161.—1849. Bon Accord.
162.—1857. Forfarshire.

With *Norwich Union.* (2)

163.—1848. Agriculturist.
163*a*.—1865. Amicable.

With *Pelican.* (2).

164.—1821. Star.
165.—1846. Manchester.

With *Provident.* (1.)

166.—1857. Westminster.

With *Provident Clerks.* (3).

167.—1858. British Exchequer. (per Consols).
168.—1859. British, Foreign, and Colonial (per Consols).
169.—1862. Consols.

With *Reliance.* (2).

170.—1855. London Mercantile, (per East of England).
171.—1858. East of England.

With *Scottish Amicable.* (1).

172.—1833. West of Scotland.

With *Scottish National.* (1).

173.—1853. United Deposit.

With *Scottish Provincial.* (1).

174.—1842. Glasgow.

With *Scottish Union.* (1.)

175.—1845. Hercules.

With *Sovereign.* (9).

176.—1853. New Protector (per British Protector).
177. 1854. Marylebone (per National Alliance).
178.—1857. English and Foreign (per National Alliance).
179.—1858. Safety.
180.—1859. British Protector.
181.—1859. National Alliance Life.
182.—1862. Public (per City).
183.—1865. City.
184.—1865. General Annuity.

With *Standard.* (9).

185.—1844. York.
186.—1846. Commercial.
187.—1850. Experience.
188.—1852. East of Scotland (per Colonial).
189.—1853. London and Provincial Joint Stock (per Legal and Commercial).
190.—1857. Legal and Commercial (per Victoria).
191.—1864. Minerva.
192.—1865. Colonial.
193.—1865. Victoria.

With *Sun.* (1).

194.—1848. Preston.

With *Whittington.* (3).

195.—1857. Birkbeck (per Home Counties).
196.—1857. Home Counties.
197.—1862. London and Yorkshire.

198.—The Royal Naval and Military amalgamated (August, 1866) with the European.

PART II.

LAW OF LIFE ASSURANCE.

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PART II.

LAW.

CHAPTER I.

Amendments required in Life Assurance Law.

ART. 1.—IT is not in the shape of direct Legislative encouragement, that the most effective impetus may be given to Life Assurance. More may be done towards the attainment of this object, and that at no expense whatever, by merely clearing out of the way those legal and practical objections which deter intending assurers. Those members and agents of Assurance and Friendly Societies, who are familiar with our Treatises on the subject,* are aware that we have for many years been urging a variety of improvements, not only in the *Practice*, but also in the *Law*, of Life Assurance, which itself is not so much the result of direct legislation, as of the principles of the Common Law embodied in the decisions of our Courts.

2.—Although this century has been characterised by so many improvements in almost every branch of the Law, yet the peculiar anomalies, that still affect Life Policies, will appear incredible to many of our readers, and even to experienced Agents and Policy-holders.

Some are probably not aware that a Life Policy, effected with the object of making a provision for a wife and children, cannot be made specially available for that purpose, unless it is made the subject of a Trust †Deed; for the amount of the Policy is liable to the debts of the husband, as the Creditors would have a prior claim to the money to be paid under it to the extent of their debts, and the bequest of it by the husband's Will would make no difference.

* [Commencing with the year 1847. Tenth Edition, 1859.]

† [Even when a Policy is settled upon Trust, if the settlement be made with intent to defraud Creditors, or if it be made without valuable consideration by a person in nsolvent circumstances, it is void as against his creditors. See Art. 11 p. 10.]

Nor is it generally known, perhaps, that a Policy, effected for commercial purposes, cannot be assigned to a Creditor, so as to vest in him a right of action; because it comes under the class of securities technically called "*choses in action,*" and, the legal representatives of the deceased alone can give a discharge for the amount of the Policy.*

Nor, that under certain Policies, although a member may have acted with perfect good faith towards the Company in filling up his proposal and told all he knew; may have continued for many years to pay the premiums in full confidence that the provision he had made for his family was secure; and may die in that belief:—yet the Assurance may have been, all the time, absolutely invalid and the premiums utterly forfeited, merely because some one of his referees, without his knowledge, may have innocently made an incorrect statement, which, by the peculiar form of the Policy, was converted into a Warranty.

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* [In the original edition of the larger work, published 1851, of which this is the legal section, we gave the heads of a Government Life Assurance Bill, and remarked:—

That, "although the excellent machinery of Savings Banks has been in operation so many years, it has never yet been rendered applicable by Law to the extension of Life Assurance among those, who cannot conveniently pay large premiums at distant intervals."

After the lapse of thirteen years, a Bill was introduced by Mr. Gladstone, at the instance of that able public servant, Mr. Scudamore, to carry out our suggestion, by enabling the Government to grant Policies of Assurance to the extent of £100 through the Post Office. We pointed out a defect in the 10th Section of the Act (16 and 17 Vict, c. 45) relating to the purchase of Government Annuities through the agency of Savings Banks, which made it imperative on a person effecting an Assurance on his Life, to purchase at the same time a deferred Annuity. This, of course, prevented any Assurances being effected under it. Mr. Gladstone consequently brought forward his Bill (11th February, 1864, 27 Vict.) to amend the aforementioned Act, and it will be seen by the 2nd Clause in the Bill, which we place in juxtaposition with the remarks we made on the subject, as above stated, that Mr. Gladstone, in express terms, adopted our suggestion, and the objectionable system has been withdrawn.

Bill of 1864.

Clause 2.

"So much of the Tenth Section of the said Act as requires that a Deferred Annuity shall be purchased by any person who has contracted with the Commissioners for the Reduction of the National Debt for payment of a Sum of Money on Death, shall be, and the same is hereby repealed."

(Scratchley's Treatise on Savings Banks. Chap. XIII., *page* 248.)

"The condition that an Annuity should be purchased concurrently with the Assurance, is objectionable, and *has rendered the Clause useless:—the more so, as the total amount that can be assured is only three-and-a-quarter year's payment of the maximum Annuity of* £80.

3.—We have already remarked that the law of Life Assurance is not derived from the Statute Law, with the single exception of the Gambling Act of 1774; but has grown up as the result of successive decisions of our Courts on the isolated points which have come before them judicially. These decisions resulted from attempts to apply the ancient Common Law doctrines to a species of contract, which was entirely unknown until a very recent period. Since then, as the importance of Life Assurance has become more generally recognized, sounder commercial views have obtained among the judges, and the law has undergone, and is still undergoing, a gradual transition. When we remember that, not very long ago, it was gravely held that contracts of Life Assurance were against public policy; that the present system of Life Assurance on graduated rates of premium is not a century old; and that it is to the interest of all parties, and especially of the Societies themselves, to keep out of the Law Courts, except in the last extremity, it will not be wondered at that the law on the subject is, to a great extent, fragmentary, uncertain, unsettled, and contradictory. Such as it is, however, there can be no doubt that a general notion of it should be acquired by every one who is interested in Life Assurance Companies, or who has effected a Policy; and it is with the object of affording such a brief general view that the digest of the cases contained in Chapter II has been prepared.

4.—A perusal of the cases, there collected, will enable the reader to form some idea of the principles upon which legal decisions have hitherto proceeded. It will be observed that all litigation, in connection with Life Assurance, depends upon the proper construction of a written instrument called a "Policy," or the preliminary documents on the faith of which it has been issued; as the Policy usually refers to certain statements previously made by the Assured and by others on his behalf. Sometimes the policy declares that these statements are the basis of the contract; in that case it amounts to a "*warranty*," and the literal truth of those statements, whether material or not, must be established: a *mis-

* [Dowdeswell on the Law of Fire and Life Insurances, 1846, p. 35; Bunyon on the

statement in a warranty is fatal, although arising from the most innocent mistake, or from false information afforded by others, or mere inadvertence, and whether it was a material inducement to enter into the contract or not. Where the statements are not declared to be the basis of the contract, the Policy is one founded on the mere "*representations*" of the Assured or his agents; in that case, if there be anything material untruly stated, or anything omitted that ought to have been set forth, whether fraudulently or not, any *suppressio veri*, or *suggestio falsi*, the Policy becomes void, but not for any immaterial misstatement or concealment. The rule of law on this subject is thus stated by Mr. Justice Park† :—"The question is this: Did the Assured, or any one who made a statement on his behalf to the Company, know of a particular fact?—Yes. Do the Jury think the fact material to be communicated?—Yes. Was it communicated? if not, the Policy is void." A new form of Policy has recently been proposed to be issued, framed with a view of expressly waiving the right of the Company to avoid it, if the life be in existence and of the age stated, all reference to any other statements made by the Assured or his agents in effecting it being excluded. This is called an "*indisputable*" Policy, and under it the Office would be precluded, except in cases of fraud, from raising any question as to the representations made in effecting it.

5.—For the disputability of a Policy, the remedy is not by legal enactment, but by an improvement of the practice of the Companies in defining the terms of their contracts with the public. The other defects referred to in Art. 2, require the action of the legislature to remove them.

1°.—Every possible security ought to be afforded to those who have already endeavoured, or may hereafter endeavour, to provide for their *wives and families* by way of Life Assurance, that their laudable object shall not be frustrated. This *desideratum* can be attained only by enacting that the Assured shall have the power of making the whole or a certain portion of their policies specially available for that purpose.

Law of Life Assurance, 1854, p. 32; Robertson on the Nature and Value of Life Policies, 1860, p. 8; Mr. Serjeant Marshall on Marine Insurance, 4th edition, 1861, by Serjeant (now Mr. Justice) Shee, p. 280; Ellis on Insurance, 1832, p. 28.]

† [On the Law of Marine Insurances, 8th Ed., p. 936.]

2°.—For the benefit of *Creditors*, also, Policies should be made *Assignable*, and that by simple Endorsement.*

Feeling the pressing importance of these Amendments in the Law, we prepared, and Mr. Hibbert, M.P., presented in the year 1862 a Petition to Parliament, signed by 750 Members of Life Assurance Societies, and by the authorities of many of the leading provincial towns, to the following effect :—

"That your petitioners are deeply impressed with the urgent importance of additional security being afforded to those who have already endeavoured, or may hereafter endeavour, to effect provision for their wives and families by way of life assurance. That at present a policy of life assurance taken out with such object is liable for the debts of the assured, which may deprive his wife and family of any provision whatever. It appears to your petitioners that by the act of marriage every man undertakes the distinct responsibility of providing, as far as may lie in his power, for his wife and children; and that if he incur other liabilities of a pecuniary character, his family have at least as great a right as any other creditor to require some provision to be secured to them by a policy of assurance; and that it is to the interest of the community at large that, where assurances have been effected, the assured should have the power of making some portion of them specially available for his family without the uncertainty and expense of a trust deed. Your petitioners further humbly submit, that the principle has already been recognized by the Legislature to a limited extent in the acts relating to Friendly Societies; and that it has been adopted by the State of New York† by an act passed on the 1st of April, 1840, enacting that any married woman by herself, and in her name and in the name of any third person, with his assent as her trustee, may cause to be assured for her sole use the life of her husband for any definite period or for the term of his natural life; and that in case of her surviving her husband, the sum or net amount of the assurance becoming due and payable by the terms of the assurance shall be payable to her, to and for her own use, free from the claims of the representatives of her husband or of any of his creditors; but that such exemption shall not apply where the amount of premium paid annually exceeds three hundred dollars. Your petitioners further humbly submit that, while granting this boon to the wives and families of assured persons, it is of the highest

* [The law of Scotland allows greater facilities for Assignment than that of England, and has been found to work well. Adhesive stamps might, with convenience, be allowed to be used for Endorsements, as at present for Policies. Nominations to Widow or Children ought, in principle, to be on the same footing, as to exemption from taxation, as the succession to Widows' Funds in Benevolent Societies, but as to this, see art. No. 20.]

† [In the case of Eadie *v.* Slimmon, decided in the New York Court of Appeal, June, 1864, it was held that in that State a wife cannot assign her interest in a Policy on the Life of her husband for the benefit of his Creditors. SMITH, J., in giving judgment, said, "We think the intent of the Statute (of 1840 in respect to insurance on Lives for the benefit of married women) was to make these Policies a security to the family of any married man, and a provision for their use and benefit, and that this intent would be defeated, if they were held to be assignable by the wife, like ordinary choses in action, belonging to her in her own right, as her separate property."]

importance, whatever opinion may be entertained as to the propriety of making 'choses in action' generally assignable at law, that policies of assurance should be allowed to obtain their full value as commercial securities, by being made assignable by simple endorsement like bills of exchange, without the necessity of the legal representatives of the deceased joining in the receipt for the sum assured. Your petitioners, therefore, humbly pray that your honourable House will take the premises into your favourable consideration. And your petitioners will ever pray, &c."

6.—To carry into effect the prayer of this petition, we framed, with the assistance of Mr. VANSITTART NEALE, of Lincoln's Inn, a Bill,* of which the following summary contains the main provisions. In subsequent pages we shall proceed to explain the Bill in detail:—

§§ 1, 2. That a Policy-holder may nominate *his wife, children, or relatives*, to receive the monies secured under the Policy.

3. That the Policy must be produced to the Society, and the nomination acknowledged by them.

4. That thereupon the receipt of the nominee shall be a good discharge.

5. That the nomination shall be *void* if the Nominor become bankrupt within 12 months, or if the Nominee die before the Nominor.

6. That the nomination shall not affect trusts previously existing.

7, 8, 9. That in case of the death of the Nominor *within* 12 *months*, the nomination may be made liable to his debts.

10. That where a Nominee has acquired a vested interest, it will descend to his representatives.

11. That the nomination shall not be revocable, but other Nominees may be substituted.

12. That the rights of Nominees shall not be assignable or chargeable in Equity until they become vested.

13. That Policies may be surrendered by the Nominees on the *bankruptcy of the Nominor*.

14. That the nomination may extend to part only of the Policy.

15, 16. That the Societies may constitute themselves TRUSTEES *for Infant Nominees*.

17, 18. That they shall see to the payment of *probate and legacy duty* on the sums nominated.

19, 20, 21, 22, 23. That Policies may be *Assigned by Endorsement* with acknowledgment.

* [It is gratifying to be able to state that so recently as December of last year (1862) an Act was passed by the Parliament of *New South Wales*, "For the encouragement and pro-

As to the proposed Power of Nominating the Wife or Children of the Policy Holder to receive the Sum assured.

7.—The first proposition contained in the Petition and embodied in the Bill is "to enable the holder of a Life Policy, by a mere Endorsement to be acknowledged by the Assurance Office, to nominate his wife or any one or more of his children or relatives, as the person or persons to whom in the event of his death the sum assured by the Policy is to be paid." This is intended to remove the most important and forcible of the legal obstructions, which press heavily on those to whom Life Assurance is most appropriate and valuable. We will take for an example the case of a man who, being engaged in commerce or otherwise, and earning by his own labour a precarious income depending upon his life, has effected an Insurance in order to give his wife and family the means of support if prematurely deprived of his exertions. As the law at present stands, if the Assured should die insolvent, or become so at any period whatever after the Policy has been effected, it would become the property of his creditors, to the exclusion of the widow and children for whose benefit it was originally obtained and kept in force, at perhaps considerable pecuniary sacrifice and self-denial. This result might, it is true, as we shall presently see, be avoided by making the Policy the subject of a *trust*; but there are many reasons which operate to prevent small Policy-holders from executing *Trust Deeds*—such as their expense, the difficulty of finding Trustees, the complexity of their provisions, a natural desire to avoid transactions that involve legal formalities, which are so distasteful to men in all positions of life. And so generally do these objections

tection of Life Assurance and other like provident arrangements for the benefit of Insurers, their Wives and Families," by which precisely the same object as that of our Bill is attained, though in a rather imperfect manner. A Special Act of Incorporation has also been granted by the same Legislature to the "Australian Mutual Provident Society," embodying similar provisions. By these Statutes the period of non-protection from the claims of Creditors is fixed at two years; and a sliding scale of protection is provided, according to the length of time a Policy has been in existence. Thus, after two years, the protection extends to £200; after five years, £500; seven years, £1000; and after ten years, £2000, which last-named sum is the limit to which protection is extended.]

prevail, that scarcely one Policy in a thousand becomes the subject of a settlement upon Trust.

8.—We will assume, for our present purpose, that no such Deed has been executed.—Now, the case of a widow and children, prematurely deprived of their natural protector, is of itself one that calls for great sympathy; but when, added to the affliction and privation, the widow sees taken from her those means, which many years of past frugality and forethought on the part of herself and her husband had provided in order to keep her and her children from want, the case is doubly hard. Surely it would be to the interest of the community to enable him effectively to secure his Policy for the benefit of his family. Morally, he is bound to provide for them; and legally, he can make the provision by a fitting instrument. But the operation is troublesome and expensive; consequently it is often omitted; and thus there arises a conflict between Law and Morals. The Policy, continuing to form part of the general estate of the Assured, is held liable to the last penny for his debts; so that until the whole of the claims of his Creditors has been satisfied, the wife and children cannot receive one shilling.

9.—Objectors to the proposed measure have asked—putting the case of a Policy for £2000, the holder of which owes £2000 more than he can pay—"Ought this money to pass to the wife or to the creditors? "Does it make any difference in such a case whether at the time of "the Debtor's decease, he has £2000 in the hands of his bankers, or "the like sum standing to his credit, one minute afterwards in the "ledger of an Assurance Company? The most tender hearted "would hesitate to set up for the wife even a moral claim to the "money in the bank, yet the sympathy for her forlorn position "ought to be quite as strong in the one instance as the other."

10.—We have quoted these remarks as embodying the only arguments, we have yet heard, urged against the principle of the proposed measure, but it is easy to point out the fallacy upon which they are based.

The only object sought is to place the wife and children of

the Assured, by the simple, inexpensive, and certain process of *Nomination,* in the *same position* as they would occupy if the Policy had been secured to them by the formality of a *Trust Deed.* The practice of securing a Policy from Debts by a settlement is one perfectly well known to the present law, but the privilege is virtually denied to persons of limited means, whilst it is conceded to the rich. The man who is assured for £2000 would probably, under the present law, secure his Policy. What we desire is to enable a person assured for £100 or £500 to do so with equal facility.

Where does the difference exist in principle between a Policy secured for the benefit of a wife by a Trust Deed, and one unsecured, assuming that the Policy was effected before the Assured had contracted debts beyond his resources? There really is none. Yet in the one case, his subsequent Creditors cannot touch a penny of the proceeds of the Policy, while in the other they take the whole. All we propose is to place both on the same footing, or, in other words, to confer the same rights upon a Nominee that are conferred by the Trust Deed upon a *cestui que* Trust.

11.—The broad distinction made by the Law in respect to *Assignments upon Trust* is as follows :—If a man who is *Insolvent** assures his life, and by post-nuptial settlement settles the Policy upon Trust for the benefit of his family, any Creditor he may happen to have at the time he executes such settlement would, upon his death, be entitled to set the Deed aside, and claim payment out of the proceeds of the Policy. But if at the time of assuring his life and executing the Trust Deed he were *solvent,* any Creditors he might subsequently happen to have, could not set the Deed aside, or claim payment out of the proceeds of the Policy.

* Being in "insolvent circumstances" has been defined by Lord Ellenborough to mean "that a person is not in a condition to pay his debts in the ordinary course as persons carrying on trade usually do." "It does not follow," says Mr. Justice Le Blanc, "that a man is not (now) insolvent because he may ultimately have a surplus upon the winding up of his affairs."—*Bayly* v. *Schofield,* 1 Maule and Selwyn, 338. In other cases insolvency has been defined as "a general inability to pay debts."—*Parker* v. *Gossage,* 2 Crompton, Meeson, and Roscoe, 617; *Biddlecombe* v. *Bond,* 4 Adolph. and Ellis, 332.

There is, therefore, no impediment in the way of a person assured, who is desirous of making a provision for his Family, executing a Trust Deed. The law simply guards against the possibility of his defrauding his Creditors by requiring that he shall be in solvent circumstances at the time.

12.—We shall now proceed to examine the effect of certain Statutes which bear indirectly upon the question, and the principles involved in the cases decided thereon. By the 13 Eliz. c. 5, it is enacted that "*all and every gift or alienation had or made to or for any intent or purpose to delay, hinder, or defraud Creditors or others, shall, as against such person or persons, be utterly void;*" and by the 12 and 13 Vict. c. 106 s. 126, (Bankruptcy Act, 1849), it is further provided that if any person, *being at the time Insolvent,* shall convey any property to any of his children or any other person, except upon the marriage of any of his children,* or for some valuable consideration, and shall afterwards become Bankrupt, the Court may order the property to be sold for the benefit of his Creditors.

13.—These provisions have, on various occasions, been extended by the Legislature, and they have also received judicial interpretation. The Act of Elizabeth provides that a fraudulent conveyance shall be *void* as against Creditors; but the principle is carried further in a subsequent enactment, the 1 Jas. 1 c. 15 s. 2 (repeated with amendments in 6 Geo. 4 c. 16, s. 3, and 24 & 25 Vict. c. 134 s. 70) under which the very fact of having made a fraudulent conveyance is made an act of Bankruptcy. Thus, in the words of Lord Mansfield, "if a trader makes a conveyance of *all his property,* that is instantly an act of Bankruptcy; it is fraudulent."† But a *fraudulent intention* must appear from the circumstances of the case; for example, the incident of "the want of delivery of possession alone does not make a Deed of Sale of Chattels absolutely void."‡ "The existence of property

* [Where there is evidence of an intent to defeat and delay Creditors, and to make the celebration of marriage a part of a scheme to protect property against the rights of Creditors, the consideration of marriage cannot support such a settlement. *Columbine* v. *Penhall,* 2 De Gex, McN. & Gord. 228. See Deacon on Bankruptcy, by Hunter, 1, 494.]

† [*Hassells* v. *Simpson,* 1 Douglas's Reports, 89.]

‡ [*Martindale* v. *Booth,* 3 B. and Adolph. 498, per Justice Parke.]

at the time of the settlement, *not* included in it, ample for the payment of debts then due, would negative the fraudulent intention."* A deed made in consideration of "natural love and affection" is not necessarily void, although it may be made so by evidence; and on the other hand, evidence may be adduced to show that no fraud was *in fact* intended —not to contradict the consideration stated in the Deed, but to take it out of the operation of the statute.†

14.—If the Deed, by which the property is assigned, were executed previous to incurring the debt of any particular Creditor, the Court of Exchequer held in 1848 that there was nothing in the Act to make the Deed void as regards him; though there is a much older decision (1743) to the contrary effect, in which the Master of the Rolls remarked, "Though I have always a great compassion for wife and children, yet, on the other side, it is possible, if Creditors should not have their debts, their wives and children may be reduced to want."‡ Lord Loughborough, in another case, is reported to have said "I rather wish in these cases to take it upon the offer of the parties, and not to make a reference. The wife does not fare the worse for it. The Creditors generally act very handsomely with respect to her and it saves expense."§ Legal dicta, such as these, may apply very forcibly to cases where a Settlement is attempted to be made of property, on the faith of the possession of which by the Debtor credit has been given to him; or where, as in the case cited, the wife had a claim in respect of her separate property, which a Court of Equity would assist her in enforcing: but the principle of such cases is altogether inapplicable to the objects contemplated by the proposed Bill. These dicta have no relation whatever to *Settlements of Policies of Assurance made in good faith, when the holders were not in insolvent circumstances.*

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* [*Skarf* v. *Soulby*, 1 MacNaugh. and Gordon, 364, Lord Cottenham.]

† [*Gale* v. *Williamson*, 8 Meeson and Welsby, 405, per Lord Abinger, and Barons Alderson and Rolfe.]

‡ [*Oswald* v. *Thompson*, 2 Exch. Reps. 215; *Taylor* v. *Jones*, 2 Atkyns, 600: but see, in respect to this latter case, *Dundas* v. *Dutens*, 1 Ves. jun. 196; *Lush* v. *Wilkinson*, 5 id. 384; and *Rider* v. *Kidder*, 10 Ves. 360.]

§ [*Pringle* v. *Hodgson*, 3 Vesey, jun., 617.]

15.—It will have been perceived, from the Statutes and Cases that have been quoted, that it is a transaction perfectly legal and straightforward for a solvent man, acting in good faith, to protect the whole or any part of his property from the possibility of being invaded by a future access of personal misfortune. But we have said (Art 10) that this power of so protecting property is practically a privilege conceded to the rich, denied to persons whose means are more limited. We proceed to point out how this inequality arises; first remarking that it constitutes a legal disability, partial and therefore unjust in its operation, the removal of which, by an alteration of the law, such as the Bill we are discussing will effect, is urgently required. Every man has nominally a legal right to protect his property from future debts, yet in the very cases in which one ought to be so protected, *viz.*, where his means are limited, and the amount secured by his policy is small—it is practically impossible for him to avail himself of his legal right to do so. A state of the law which thus, practically, concedes to the rich, and denies to the poorer man the privilege of setting aside a very small portion of his annual earnings—so small that no creditor could say the debt was contracted on the credit of it, or that the means of payment were thereby lessened—for the sacred purpose of supplying to his family the lack of his strong arm, should death lay him low, could scarcely continue if it were generally understood.

16.—A principal practical obstacle to settlements of small sums is the *difficulty of procuring Trustees.* For persons in a superior class of life it may, perhaps, be comparatively easy to obtain the consent of friends to incur the responsibility and trouble not unfrequently arising out of Trusts; but when a lower stratum of society is reached, there are multitudes of persons, highly respectable, but of limited means, uncertain position, and defective education, who are not suitable for Trustees; while the assurer may have no one else to whom he could apply. Another serious obstacle in such cases is the expense of a Trust Deed, which is, of course, very much the same whether the amount of the property is large or small. Most Assurers in the position in life to which we are referring, find it a sufficient

tax upon their resources to provide for the payment of the premium, without having to fee a solicitor for preparing a legal instrument to settle the Policy upon Trust. To this consideration must be added the dislike of legal formalities, even if only apparently complicated, which is felt by all classes, but especially by the poorer.

17.—The system of Nomination is not without precedent in the Statute Law, for the privilege already exists in Societies registered under the *Friendly Societies' Acts*, and had actually been adopted with reference to Policies exceeding £200 by several large Companies, which were originally started under the sanction of those Acts.* If extended by enactment, as now proposed, to Assurance Societies, it is anticipated, that independently of the middle classes, whom we have had principally in view in our previous remarks, a vast proportion of our mechanics and labourers would effect Policies in established Assurance Companies, in order to be freed from the risk of loss by ultimate bankruptcy, through excess of sick allowances, to which the majority of Benefit Societies are exposed.†

The clause referred to in the Friendly Societies' Act (18 and 19 Vict. c. 63, s. 31) provides, that any sum not exceeding £50, assured in a Friendly Society, may, on the death of the member, be paid *"to any person nominated by the deceased in writing, deposited with the Secretary, such person being the husband, wife, father, mother, child, brother or sister, nephew or niece, of such member."*

18.—Any one, who has conversed with small traders in country towns on the subject of Life Assurance, must frequently have heard the observation, that they would have no objection to insure for some small amount, if the Policy could be secured to their families free from the contingencies of their trade.

19.—The inconvenience of the present law is, also, not unfrequently felt by families on the death of a husband or father, who has insured his life, but has left no immediately available means to pay for probate duty, funeral expenses, &c. Until probate be granted, an

* [See Report of Parliamentary Committee, 1850.]

† [See Scratchley's "Treatise on Life Assurance and Friendly Societies," 10th Edition, p. 78.]

Assurance Society, however willing to advance a portion of the claim in anticipation, cannot do so safely, for want of any one to give a valid receipt, and the widow and children are left in the greatest perplexity and distress; a position which is aggravated by the common practice adopted by persons, who fancy they have claims upon the Policy, *viz.*, that of serving notice to that effect upon the Society. All these evils would be avoided by the system of Nomination.

20.—An objection has been raised to this mode of dealing with Policies of Assurance after the death of the life assured, on the ground of the loss the Revenue would sustain by the evasion of the probate duty. Under the Friendly Societies' Act this duty was remitted, because those institutions are composed mainly of the poorer classes, and it was thought (whether rightly or wrongly) that Government ought to encourage them by an exemption from taxation; but it is no part of the object of the proposed Bill (though designed mainly for the benefit of persons of moderate means,) to call upon the Nation to relinquish one penny of revenue in their favour. It is true, that many families find it exceedingly difficult to pay the premiums on the Policies, which are effected for the purpose of making provision for children; and also that inconvenience is often sustained through the expense of probate or administration, but it is not desired to attempt any distinction between such cases and those of the more wealthy. Clauses (17 and 18) have, therefore, been introduced into the Bill, to make provision for the *collection of the Probate and Legacy duty* from the Companies, who are to charge it to the claimants; and these more than meet the objection, although we are aware that, if the Policy had been secured under a *trust deed*, there would be no probate or legacy duty to pay.

21.—*Proposed privilege of making the Society Trustee for children under age.*—By clauses 15 and 16 of the Bill it is proposed to enact that any Policy-holder, who desires to nominate infants to receive the amount assured, may arrange with the Insurance Company, that in case of his death before they become of age, the Society shall act as Trustee on their behalf, holding the money at interest, and paying

it in such a manner as the nominor may direct. This is an entirely new, and very valuable privilege, and, by legalising the receipt of minors, may be made available to provide, by payment of the interest, for the *education or maintenance* of the children, and by the capital sum, for *premiums on apprenticeship*, or for *marriage portions*. It too often happens that, on the premature death of the father of a young family, any property in cash, or easily convertible into cash, that he may leave behind him, becomes dissipated or gradually exhausted, long before it can be applied for the real advancement and benefit of the children; but under the proposed powers this can never occur, for the money will be vested in a body, which will have no discretion in the matter but to pay the capital and interest at such periods, and to such persons, as the nomination, made originally by the deceased father, shall have directed.

22.—To resume, in one word, the advantages which may be anticipated from the alteration of the law proposed in our Bill, we believe that it would do more to extend the practice of Life Assurance in its most beneficial application than any direct pecuniary encouragement which could possibly, with any expediency, be given. The power of securing all the advantages of the present system of Trusts, by a simple *Nomination*, notified to the Assurance Office, would be an inestimable boon to a large number of persons of all classes. If facilities for effecting this were granted by the Legislature, not only would the Assurance Societies obtain an accession of business, but much hardship would be obviated to the families of the Assured.

As to the proposed Provisions for Facilitating and Legalising Assignments of Life Policies to Creditors.

ART. 23.—Having explained the effects of the proposed measure upon the widow and orphan, let us see what would be its effects upon the Creditors of the Assured. The Bill provides for the *Assignment of Policies by a simple Endorsement* thereon, coupled with notice to the Assurance Office, so that all the rights, legal and equitable, of the Assignor, shall vest in the Assignee. In a commercial point of view, these provisions are of equal importance with those which have been advocated upon moral and equitable grounds in previous articles.

24.—*As to Choses in Action.*—To understand the full value of the benefit which will be conferred upon creditors by these Clauses, it will be necessary to repeat (Art. 5) for the information of non-professional readers, that a Policy of Assurance is, in the language of the law, a "chose in action," which may be thus explained:—Where a man has not the enjoyment (actual or constructive) of the thing in question, but merely a right to recover it by a suit or action at law, the thing so recoverable is called a thing or 'chose in action.' Thus money due on a bond is a chose in action, for a property in the money vests whenever it becomes payable, but there is no possession till recovered by course of law, unless payment be first voluntarily made;* and this principle applies equally to a Policy of Assurance. Now, by the strict rule of the Common Law, no chose in action can be assigned, because it was thought to be a great encouragement to litigation if a man were allowed to assign to a stranger his right of going to law.† But this rule may be evaded, and a chose in action may be assigned by a mode in the nature of a declaration of trust, with an agreement to permit

* [Mr. Sergeant Stephens' Commentaries on the Laws of England, vol. 2, p. 11. Blackstone's Commentaries, vol. 2, p. 397.]

† [See *London Investment Company* v. *Sir Moses Montefiore*, 9, L. T. N. S. 688.]

the assignee to make use of the name of the assignor for the recovery of the debt. The Courts of Equity, however, make the rule give way to the expediency (in a commercial point of view) of facilitating the transfer of property, and allow the assignment of a chose *in action* as freely and directly as the law does that of a chose *in possession.* Nevertheless, if A, after effecting an Assurance on his own life, assigns it and then dies, any action, that may become necessary to recover the amount of the Policy, must be brought in the name of the legal representatives of A; for the Policy (and the right of action as annexed to it) is a chose in action, and the Assurance Company, if disposed to pay, could not safely do so, unless the representatives of the deceased, as well as the assignees, join in the receipt.

25.—To avoid all the uncertainty, complication, and expense, which are the natural result of a state of the law so obstructive to the interests of commerce, the bill proposes that it should be enacted (s. 19) that, upon an assignment of a Policy being produced to the Assurance Society, it may *acknowledge* the same by an endorsement on the Policy; (s. 20) or that the Assignment may itself be made by an *Endorsement* on the Policy, so acknowledged; (s. 21) that the *acknowledgment* must be in a proper form, set forth in the Schedule to the Bill; (s. 22) that the Assignee, under an Assigment so acknowledged, may sue and give discharges *in his own name;* and (s. 23) that the Society may charge a *fee* not exceeding five shillings on each acknowledgment. The instrument would thus always bear indorsed upon it the name of the party really entitled to it, and he would be able to recover under it at any time without recourse to any Common Law fiction, or to the aid of a Court of Equity. His title to the Policy would be absolutely complete in his own right. The document would be perfectly available as a security and transferable like an ordinary Bill of Exchange from hand to hand; and the creditors would be effectually protected from fraud. To prevent loss to the revenue, it is also provided that the Assignment, if made by Endorsement, must be duly stamped.

26.—Whatever opinion may be entertained as to the propriety of

legalising the Assignment of other *Choses in Action* generally, there can be little doubt (and we are convinced there will be none in commercial circles) as to the expediency of thus affording to Policies of Assurance their full value as Commercial Securities by rendering them as easily assignable as Bills of Exchange. It would directly tend to make the practice of Life Assurance more general and more habitual than it now is. Among the many arguments that might be adduced in favour of it, is one furnished by the fundamental principles of *Political Economy:—that the prosperity of a trading community depends upon the extension of credit, provided such credit bears some proportion to the Capital which guarantees it. It is not necessary that the capital should be "in possession," and public credit is a thing essentially personal, and dependant on the existence of the person to whom it is given. It follows, therefore, that such an Instrument as a Policy of Assurance, which so much facilitates the creation of capital, and gives security to the creditor, may be made a most important element in commercial operations, and the rights of the party to whose possession it is transferred should, as long as he remains the holder of it, be undoubted and complete.

27.—There is another point of view in which the proposed clauses would be an important improvement on the present state of the Law. When an assignment of a Policy has been *acknowledged* by the Assurance Office, and such assignment has been given in proper form upon the Policy itself, then, and not till then, the assignment is by our proposition to confer *complete powers* on the assignee. By this provision the assignee would be extricated from the difficulty and uncertainty, which encumber the present law respecting *notice.* Under the present law, if an action is to be brought in reference to a Policy, the fact of the assignees having given notice of the assigment to the Assurance Office makes no difference as to the parties in whose name the action must be brought; nevertheless, it is necessary to give notice in order to preserve priority over any future incumbrance the Assignor might create, or in case of Bankruptcy. If notice has

* [Scratchley's Treatise on Life Assurance Societies and Friendly Societies. Tenth Edition, p. 15.]

not been given, the Court of Bankruptcy may order the Policy to be sold for the benefit of the creditors generally (12 *and* 13 *Vict. c.* 106, *s.* 125) for, in the words of Lord Justice Knight Bruce, "When a debt due to a trader is assigned by him, it remains, notwithstanding such assignment, in his order and disposition in the event of bankruptcy, if nothing more is done *to give publicity to the Assignment* than the mere delivery of the instrument creating the debt; and this principle applies equally to a Policy of Assurance and a Bond."* The notice *need not be formal,* so long as the fact is communicated;† indeed, it has been said that "in these cases the slightest circumstance of notice is sufficient" ‡:—but, as Sir George Rose has remarked, "although it is *not* necessary that any formal or *perhaps even written* notice should be given, yet whatever manner is adopted, it must be a clear and distinct notice,"§ and the sufficiency of the notice in any particular case is a question of fact for a jury.|| The general principle appears to be that the notice must be such as would have the effect of preventing the Office from paying the sum assured to the Assignor.¶ Thus, where the attorney who arranged the Assignment was an agent of the Company, authorized to receive notice, it was held that his knowledge was sufficient, Lord Denman remarking, that "where the two capacities are united in one person, a notice received in one capacity for the purpose of being transmitted to the other is an effectual notice in both capacities."** But it is doubtful whether notice, given to the secretary of one company as such, is sufficient for another company of which he is also secretary,†† and the *private knowledge* of the secretary and of a director has been held not to be sufficient;‡‡ nor the men-

* [*Exparte Arkwright,* 3 Montagu, Deacon, and De Gex, 129.]

† [*Lord Lyndhurst* in *Smith* v. *Smith,* 2 Crompt. and Meeson, 231.]

‡ [*Exparte Stright,* Montagu, 502.]

§ [*Exparte Carbis,* 4 Deacon and Chitty, 354. In the recent case of the *North British Insurance* v. *Hallett,* a verbal notice was held sufficient. See art. 13, chap. 2.]

|| [Chief Justice Tindal, in *Edwards* v. *Scott,* 1 Manning and Granger, 962.]

¶ [*Thompson* v. *Spiers,* 13 Simon, 469]

** [*Gale* v. *Lewis,* 9 Queen's Bench Reports, 730.]

†† *Exparte Bignold,* 3 Deacon, 151; 3 Montagu and Ayrton, 477.]

‡‡ [*Exparte Watkins,* 2 M. & A., 348.]

tion of the assignment in conversation to the clerk who receives the premium; nor the mere fact of the assignee making payment of the premiums without any contract for the purpose.*

28.—The mere recital of these numerous decisions, founded on so many refinements, which constitute the present law, will be sufficient to show the advantage in respect to certainty, simplicity, and convenience which the new system we advocate will afford. The acknowledgment of notice is to be made *on the instrument itself*, which cannot therefore be dealt with in any way to the prejudice of the assignee; and the very fact of acknowledgment confers on him a title, to that extent indisputable, to deal with the Policy as of right, *in his own name*, without any restriction or subterfuge whatever.

29.—It may be worth while to remark, finally, that (important as the proposed change is) it is not without precedent in the existing Statute Law;—for among other illustrations we would refer to the 25 *and* 26 *Vict. c.* 101, *s.* 387, wherein it is provided that public or commissioners' securities may be assigned by *indorsation on the back* in the form and tenor following:—

"I, C. D. within designed do transfer this bond, with all right,
" title, or interest, which I have under the same to E. F., his [or
" her, or their, as the case may be] executors and assignees.
" In Witness whereof [insert testing clause in common form.]
" C. D.
" K. L., Witness.
" M. N., Witness."

* [*Burridge* v. *Row*, 1 Young and Collyer's Chancery Cases, 183.]

Conclusion.

30.—In concluding our remarks upon the measure we propose as a first instalment of the *General Amendment of Life Assurance Law* which is necessary, we have only to urge upon the Legislature, and the individual members who compose it, that it will be much to be lamented if any misconception as to the provisions of the Bill, any unreasoning prejudice, or any stress of other business of a more attractive but less solidly useful character, should be allowed to prevent, or even to delay, its passing into law. *Nolumus leges Angliæ mutari* is no longer the public maxim; for when those laws have, in other relations of Society, been found to work injustice, the community (and the legislature, as its organ) have gradually overcome all unwillingness to change them.

31.—To the Assurance Companies themselves it is, we conceive, unnecessary to say much. Nothing can be more obvious than that the passing of the proposed measure would result in a great extension of Life Assurance business;—and the combined feeling of self-interest with public and private justice will, we doubt not, prompt them to a strenuous support of the Bill in its progress through Parliament.

DRAFT

OF A

PROPOSED LIFE ASSURANCE BILL.

A DRAFT OF BILL

For enabling Policies of Life Assurance to be specially secured for the Widow and Children or Relatives of the Assured by Nomination, without the necessity of a Trust Deed, and for rendering Policies of Assurance assignable at Law and by simple Endorsement.

Preamble.

WHEREAS it is expedient to extend the advantages of settlements of Policies of assurance on lives to persons who are now unable to enjoy those advantages, by reason of the expense of settlements and the difficulty of procuring Trustees;

And whereas the full development of the advantages of life assurance has hitherto been checked by legal impediments to the assignment of life policies, and it is desirable that such policies should be rendered more valuable as commercial securities, by facilitating their assignment; Be it therefore enacted by the Queen's Most Excellent Majesty, by and with the advice and consent of the Lords Spiritual and Temporal, and Commons, in this present Parliament assembled, and by the authority of the same, as follows:—

Persons may be nominated by endorsement on a life policy to receive the monies secured thereby.

1.—Any person who, before the passing of this Act, has effected or thereafter effects a policy of assurance upon his own life or upon any contingency capable of being lawfully provided for by life assurance, with any Society for the assurance of lives established in Great Britain or Ireland, may, by writing under his hand endorsed upon such policy, nominate his then wife, or any one or more of his descendants then living, or his father, mother, brothers, sisters, nephews, nieces, or any one or more of them, to receive the monies payable under such policy, or any part thereof specified in such writing, either severally or as joint tenants, or by way of succession, in the event whereon the same will become payable.

Particulars to be contained in any such nomination.

2.—Every such writing shall describe the person thereby nominated, if the wife of the nominor, by her christian name,

and if any person other than the wife of the nominor, by his christian and surname, with the date of his birth, and his relation to the nominor.

Policy to be produced and nomination acknowledged by Society.

3.—Upon making any such nomination, the nominor shall produce the policy whereon the same is made to any officer of the Society liable to pay such policy, authorized to acknowledge nominations on its behalf, and shall at the same time deliver a statement in writing under his hand containing a certified copy of the nomination, and thereupon such officer shall sign an acknowledgment of such nomination in the form contained in the schedule hereto, and the date of such acknowledgment shall be the date of the nomination hereinafter referred to.

Receipt of nominee to be a good discharge.

4.—The receipt of any person, nominated by an endorsement so made and acknowledged, shall be an effectual discharge for the sum payable to him in virtue of such nomination to the Society making such payment, against any claim on the part of the executors, administrators, or assignees of the nominor, except in the cases hereinafter provided.

Nomination to be void on bankruptcy of nominor within twelve months, or death of nominee before nominor.

5.—A nomination under this Act shall be void, and the sum payable thereunder shall form part of the general estate of the nominor:—

I.—If the nominor becomes bankrupt within *twelve* calendar months after the date of the nomination;

II.—If the nominee dies before the nominor, and the nominor does not exercise the right of substitution hereby given.

Nomination not to affect previous trusts.

6.—A nomination under this Act shall be void as against any assignment of the Policy whereby it is secured, or any covenant or trust affecting the same, made or declared before the date of such nomination, and whereof notice has been previously given to the Society wherewith such policy is effected.

Nominations to be liable to debts of nominor in certain cases.

7.—The sum payable on any nomination under this Act shall be chargeable with the debts of the nominor existing at the date thereof, if the nominor dies within *twelve* calendar months after the date of the nomination leaving any such debts then unpaid, and not provided for by his other assets, and if notice thereof is given to the Society with which the policy is effected within *three* calendar months after his decease by his creditors, executors, or administrators.

Provisions securing the application of the sums nominated in payment of such debts.

8.—No payment shall be made on a nomination by any person who dies within *twelve* calendar months after the date thereof, until the expiration of *three* calendar months after notice of his death has been given to the Society with which the policy is effected: and if in this interval the Society receives

notice of any such debts as aforesaid existing unpaid, it shall retain the monies due under such nomination until the amount thereof applicable in payment of such debts is established by evidence satisfactory to its directors, or by the judgment of a court of competent jurisdiction, and shall pay over such amount to the executors or administrators of the nominor, or otherwise as such court orders.

Payment to Nominees.

9.—Subject as aforesaid, the sum included in any nomination, or the surplus thereof after the discharge of any debts affecting the same, shall be duly paid by the Society, according to the provisions of the nomination.

Representatives of nominees, where interests vested, may act for them.

10.—The legal representatives of a nominee who dies after the happening of the contingency whereon the policy depends, but before payment, shall be entitled to receive and give valid discharges for any sum which would have been payable to the nominee under the nomination if he had been alive.

Nominor may not revoke his nomination, but may substitute other nominees.

11.—Nominations made under this Act cannot be revoked in favour of the nominor, but, in the case of the death of any nominee, the nominor may substitute in place of the nominee so dying any other person whom, under the provisions hereof, he might then originally nominate; and the nominor may, from time to time, substitute or add the names of any other persons capable of being nominated as aforesaid, as the nominees solely or jointly with those previously nominated, of the monies affected by such nomination, so that all such substitutions or additions be made in like manner as original nominations.

Rights of nominees not assignable or chargeable in equity before they are vested.

12.—The payment of premiums due upon a policy subject to a nomination under this Act, by any person other than the nominor, shall not affect the rights of any nominee to the monies thereby secured, and such rights shall be incapable of assignment either at law or in equity before the happening of the contingency whereby they become vested, unless in the case next following.

Policies may be surrendered by the nominees on the bankruptcy of the nominor.

13.—If a nominor become bankrupt after the expiration of *twelve* calendar months from the date of the nomination, the Society, by which the policy is payable, may, at any time thereafter accept the surrender of the policy, by the Nominee if of full age, or by his guardian, and pay to him, or rateably between the Nominees if more than one, the saleable value of such policy, or if the nomination does not extend to the whole of the monies secured thereby, then a proportionate part thereof.

Policies may be apportioned where the nomination extends to part only.

14.—If the power of nomination hereby given has been exercised as to part only of the sum secured by any policy, the Society by which the same is payable may, at any time, accept a surrender of such proportion of the said sum as is not included in the nomination, and may cancel such policy by issuing a new policy at the same rates of premium for the proportion thereof so included, subject to a like nomination in favour of the parties entitled under the nomination so cancelled.

Societies may constitute themselves trustees for infant nominees.

15.—In any nomination made under this Act there may be inserted, with the consent of the Society by which the policy securing the same is payable, testified as its regulations require, a provision that, if any nominee should be under the age of *twenty-one* years at the happening of the contingency whereon the sum assured becomes payable, the Society liable for such policy shall retain the sum to which such nominee is entitled until he attains such age, or until his death under it, allowing interest thereon at such rate, and payable in such manner, as is stated in such provision; and all such provisions shall be binding upon the Society and the nominees respectively.

Receipts of infant nominees and their guardians.

16.—In a nomination carrying interest, the nominor may, by a declaration inserted therein, make the receipt of any nominee at any age not under *fourteen* years a good discharge for such interest, and where no other provision is made by the nominor for the payment of the interest due to any nominee during his infancy, the same shall be payable, as it accrues, to his lawful guardian, whose receipt shall be a good discharge therefor.

Provisions for securing the payment of probate and legacy duties on sums nominated.

17.—Every Assurance Society, which admits the death of any person upon whose life a policy of assurance affected by a nomination under this Act depends, shall, within *one* calendar month thereafter, give notice of such admission to the Commissioners of the Inland Revenue; and shall, out of the sum payable on such nomination, retain an amount sufficient, in the judgment of its directors, to provide for the probate and legacy duty assessable thereon under the provisions of this Act, and shall not part with the amount so retained, or any part thereof, until such duties are paid, except in payment of such duties; and if any such Society make any payment in contravention of this provision, it shall be liable, at the suit of the said Commissioners, to pay double the sum chargeable for such duties.

Mode of ascertaining the amount of duty payable.

18.—For the purpose of ascertaining the sum chargeable as last aforesaid, the Commissioners of the Inland Revenue shall, upon the application of any nominee under this Act, assess the amount which would be payable for probate and legacy duty upon the sum secured to him by the nomination if such sum constituted the whole estate of the nominor chargeable with such duties, and shall issue to him a certificate of the amount so assessed in such form as they from time to time direct.

Assignments of policies may be acknowledged by endorsement.

19.—Any Society for the Assurance of Lives established in Great Britain or Ireland, may authorize any of its officers in case an assignment, duly stamped, of any policy for which such Society is liable, is produced to him, together with the policy and a statement in writing containing the names and descriptions of the assignor and assignee, and the date of the assignment, to endorse thereon under his hand an acknowledgment of such assignment.

Policies may be assigned by endorsement with acknowledgment.

20.—Such an assignment as last aforesaid may be made by an endorsement duly stamped on the policy assigned, in the form of assignment contained in the schedule hereto which shall vest in the assignee all the rights, legal or equitable, of the assignor in such policy at the date hereof, and may be stamped by affixing stamps thereto in like manner as to policies of assurance.

Forms of acknowledgment of assignment.

21.—An assignment of any policy not endorsed upon the policy, shall be acknowledged in the first form of acknowledgment contained in the schedule hereto; and an assignment thereof so endorsed shall be acknowledged in the second form of acknowledgment so contained.

Assignees under assignments so acknowledged may sue and give discharges in their own names.

22.—From the date of any such acknowledgment, the assignee therein mentioned or referred to, his executors or administrators, may sue on the policy assigned, and give effectual discharges for any monies payable thereunder, and not comprised in any nomination made under the power hereby given, without joinder of the executors or administrators of the assurer.

Fee to be charged on acknowledgment.

23.—The statements, hereby required to be delivered on the acknowledgment of any nomination or assignment, shall be the property of the Society on behalf of which the acknowledgment is made, which may charge for any such acknowledgment a fee not exceeding *five* shillings.

Short title.

24.—This Act may be cited as "The Life Assurance Act, 18—."

SCHEDULE

HEREIN REFERRED TO.

ASSIGNMENT OF POLICY BY ENDORSEMENT.

Signature of Assignor.	Signature of Assignee.	Consideration of Assignment.	Date of Assignment.

Witness to signatures of Assignor and Assignee.

ACKNOWLEDGMENT OF NOMINATION.

The above nomination was produced the day of before me,

Officer of the Life Assurance Society.

ACKNOWLEDGMENT OF ASSIGNMENT.
FIRST FORM.

An Assignment of the within-written Policy by of in the County of to of in the County of dated the day of , was produced the day of before me.

Officer of the Life Assurance Society.

ACKNOWLEDGMENT OF ASSIGNMENT.
SECOND FORM.

The above Assignment was produced on the day of before me.

Officer of the Life Assurance Society.

PROPOSED LIFE ASSURANCE BILL.

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RELATING TO

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In perusing the cases which are very briefly abstracted in the following pages, the Reader must bear in mind, that each decision in some measure depends upon the particular form of Policy which happened to be before the Court:—and that, as there may be an infinity of Policies, differing in some respects from each other (for we cannot assign any limit to the varieties of contract of the kind which parties may enter into), so each individual Policy will have its own special legal interpretation. The general principles *to be remembered, are:—*

1°.—*That, if the Policy contains a* warranty, *that is, if the Assurance is made to depend on the truth of any statements:—then, if any one or more of those statements,* however unimportant, *should be untrue, whether the person warranting, that is, the Assured, knew it to be untrue, or not, the Policy is void.*

2°.—*That, if the Policy does not contain such a warranty, still the Assured is bound, in applying for the Assurance, to state truly every* material *circumstance affecting his life, that is, everything that might lead the Assurers to charge a higher premium, or to decline the Assurance; and if the Assured untruly states, or omits to state, any such circumstance, the Policy is void, even though the error or omission on his part was unintentional and not fraudulent.*

3°.—*A form of Policy may be devised, which is termed* "Indisputable," *in which the right to avoid the Policy on the ground of* non-fraudulent *misrepresentation or concealment is expressly abandoned; but no form of contract (dependent on statements with regard to the life proposed) can be devised, which would enable one of the parties to profit by his* Fraud *upon the others; and, therefore, Fraud will vitiate every such Policy.*

AGENCY *(on behalf of the Assured).*

ART. 1.—Where A assures the Life of B, who makes false representations to the Office without the knowledge of A, B is not the *Agent of A, for the purpose of binding him by such false representations, unless A warrants them. (Art. 113.)

This is the decision in *Wheelton* v. *Hardisty*, 8 Ellis and Blackburn 232, 27 Law Journal, Q. B. 241, (which was an action brought by the Norwich Union Reversionary Society against a Life Assurance Association, on a policy assuring the life of R. P. H. Joddrell, tried in the Court of Queen's Bench, and decided for the Defendants, but reversed upon Appeal in the Exchequer Chamber), where, as Baron Bramwell observed, "Joddrell was no more the Agent of the Plaintiffs than of the Defendants. He was not concerned more for the one than for the other." See *Warranty*.

There is an earlier case (*Maynard* v. *Rhode*, 1824, 1 Carrington and Payne 360), which probably turned on Policies in the Warranty form, as it was an action against an old Office, on an Assurance on the life of Colonel Lyon, debtor to the Plaintiff. Chief Justice Abbott directed the jury, that if Plaintiff allowed the Colonel to make false representations when the Policy was effected, he was bound by them; and the verdict was accordingly given for the Defendant.

2.—The Assured is liable for any misrepresentation or concealment made by any Agent acting by his orders, and who is in any wise instrumental in procuring the Assurance; and the concealment of any material fact known to the Agent, even though not known to the Assured, may avoid the contract.

Lord Mansfield, 1785, in *Fitzherbert* v. *Mather*, 1 Term Reports, 12. Lord Ellenborough, 1813, in *Gladstone* v. *King*, 1 Maule & Selwyn, 35, both cases of Marine Insurance. Similar decisions have been given in the United States. See Willard Phillips on the (American) Law of Insurance, Boston. 1853, p. 292.

3.—If the Agent of the Office act also as Agent of the Assured in effecting the Assurance, even an unintentional misstatement, through such Agent, may be a breach of warranty.

Lord Lyndhurst, 1846, in *Parsons* v. *Bignold*, 15 L. J. Chan. 379. Bunyon on Life Assurance, p. 37.

AMALGAMATIONS.

4.—To remedy deficiencies of Capital, a very general movement (in most cases, of a highly beneficial character to Policy-holders) has recently prevailed among Assurance Companies, for effecting Amalgamations of the business of two or more institutions, *by the Transfer* to one Company of the *business of another*. See Part I. of this

* [The word "Agent," as here used, must not be confounded with the Agents to the Companies in various places. It is here used in a strictly legal sense.]

work. As to how far the concurrence of Policy-holders is necessary, see *King* v. *Accumulative Assurance,* 3 C. B. (N. S.) 151 : 30 L. T. 119 C. P.

1857, per C. J. Cockburn: "There is no implied covenant in a Policy, on the part of the grantors, to continue the business of an Insurance Company."

"It has been contended, that such an implied covenant arises on that part of the Policy, which provides that 'the capital stock and other the securities, funds, and property of the said Company, remaining, at the time of any claim or demand made, unapplied and undisposed of, and inapplicable to prior claims and demands in pursuance of the provisions of the Deed of Settlement, shall alone be liable to answer and make good all claims, &c., under or by virtue of this Policy; and that no director, officer, or shareholder, &c., shall be in anywise individually or personally liable, &c., beyond the amount unpaid of his Shares.' It seems to me, all that was intended by that proviso, was, to protect the Shareholders from individual and personal liability to the holders of policies. It was evidently introduced, not for the purpose of enlarging the security and extending the remedy of the Policy-holder, but precisely the reverse."

Williams, J.: It seems to me to be impossible to say, that the Policy amounts to anything more than a contract, that the plaintiff or his executors shall receive the sum assured, when the time for payment shall have arrived. It is difficult to imply from the circumstance of the Policy-holder being entitled to a share of profits, a contract on the part of the Company that they will, in order to give him a better chance of profits, continue to carry on the business, supposing it should turn out to be disadvantageous to them to do so."

Crowder, J.: "What injury has the plaintiff sustained? It may very well be that the Company were in a bad way, and that the New Company are much more likely to meet the claims of the Policy-holders, when the proper time arrives. This has been very properly characterised as an action *quia timet.* When the event assured against has happened, and not till then, the plaintiff or his representatives, will be entitled to enforce the Policy."

Willes, J.: "There is no contract by the defendants with the plaintiff, that they will not alien or transfer their funds."

See also the recent case of *Bishop* v. *Scott,* 1863, 7 L. T. (N.S.) 570 Ch., where an interim injunction to restrain an Amalgamation was refused to a Policy-holder with participation of profits, on the ground that the principal part of the arrangement had been carried out, and he could not be damnified by the proceedings remaining in *statu quo,* until the hearing of the cause.

See also *Aldebert* v. *Leaf,* (12 W. R. 462, 1864), before V. C. Wood.

In *Re the Waterloo Life, &c., Assurance Company, Carr's Case* (33 Beav. 542), A Policy-holder applied to be admitted to prove against the Company in winding up, although the Directors had, in accordance with powers given to them in the Deed of Settlement, transferred the Policies to another Company, upon terms agreed upon. It was held by Romilly, M.R., that under the provisions of the Deed, the Policy-holders had no concern with the sufficiency of the amount handed over with the Policies, and no claim on the transferring Company.

5.—In Companies registered under the "Companies Act, 1862," (25 and 26 Vict. c. 89), such Amalgamations, by Transfer of Business, are specially authorised and regulated by the following provisions :—

"S. 161. Where any Company is proposed to be or is in the course of being wound up altogether voluntarily, and *the whole or a Portion of its Business or Property is proposed to be transferred or sold to another Company,* the Liquidators of the first-mentioned Company may, with the Sanction of a Special Resolution of the Company by whom they were appointed, conferring either a general Authority on the Liquidators, or an Authority in respect of any particular Arrangement, *receive in Compensation or part Compensation for such Transfer or Sale Shares, Policies or other like Interests in such other Company,* for the purpose of Distribution amongst the Members of the Company

being wound up, or may enter into any other Arrangement whereby the Members of the Company being wound up may, in lieu of receiving Cash, Shares, Policies, or other like Interests, or in addition thereto, *participate in the Profits of or receive any other Benefit from the purchasing Company;* and any Sale made or Arrangement entered into by the Liquidators in pursuance of this Section shall be binding on the Members of the Company being wound up: subject to this Proviso that if any Member of the Company being wound up, who has not voted in favour of the Special Resolution passed by the Company of which he is a Member, at either of the Meetings held for passing the same, *expresses his Dissent* from any such Special Resolution in writing addressed to the Liquidators or one of them, and left at the registered Office of the Company not later than Seven Days after the Date of the Meeting at which such Special Resolution was passed, such dissentient Member may require the Liquidators to do one of the following things as the Liquidators may prefer: that is to say, either to *abstain from carrying such Resolution into effect,* OR to *purchase the interest held by such dissentient Member* at a Price to be determined in manner hereinafter mentioned, such Purchase-Money to be paid before the Company is dissolved, and to be raised by the Liquidators in such manner as may be determined by *Special Resolution:* No Special Resolution shall be deemed invalid for the purposes of this Section by reason that it is passed antecedently to or concurrently with any Resolution for winding up the Company, or for appointing Liquidators; but *if an Order be made within a Year for winding up the Company by or subject to the Supervision of the Court, such Resolution shall not be of any Validity unless it is sanctioned* by the Court." S. 162 provides that, in case of dispute, the value of the interest of the dissentient number shall be settled by arbitration.

Companies established by partnership or private Act may (under s. 180), and those under the Act of 1844 must (by s. 209) obtain Registration under the Companies' Act, 1862, and thus avail themselves of the above provisions.

6.—As to what indemnity should be given to the Company which sells its business, see the remarks of Lord Westbury in the *Anglo-Australian and Universal Family Life Assurance Company* v. *The Official Manager of the British Provident Life and Fire Assurance Society,* 1862, 10 W. R. 588, 8 Jur. N. S. 628.

7.—In the case of the *Saxon Assurance* exparte *Anchor Assurance,* a claim against the Saxon Company was admitted, notwithstanding that an attempt had been made to transfer its liabilities to another Company (the Era), and that the Anchor had accepted an exchange of an Era security for their Saxon one. Before V. C. Wood, 1862, 2 Johnson & Hemming, 408, 10 W. R. 724.

8.—In the case of the *Saxon Assurance* exparte *The Era Assurance,* a petition on the part of the purchasing Company to be repaid by the selling Company, the excess of the liabilities they had incurred over the assets which had been transferred, was dismissed by V. C. Wood, 1862, 2 Johnson & Hemming, 408, 11 W. R. 59.

9.—As to the power of an unregistered Company (after an amalgamation) to change its name, see *Southall* v. *Beattie,* before V. C. Wood, reported in the *Times* of the 17th December, 1862. The following is the provision of the Companies' Act, 1862, as to change of name in those Companies which are registered under it:—

"S. 13. Any Company under this Act, with the Sanction of a Special Resolution of the Company passed in manner hereinafter mentioned, and *with the Approval of the Board of Trade testified in writing under the hand of its Secretaries or Assistant Secretaries*, may change its Name, and upon such change being made, the Registrar shall enter the new Name on the Register in the place of the former Name, and shall issue a *Certificate of Incorporation, altered* to meet the Circumstances of the Case; but no such alteration of Name shall *affect the Rights or Obligations* of the Company, or *render defective any legal Proceedings* instituted or to be instituted by or against the Company, and any legal Proceedings may be continued or commenced against the Company by its new Name, that might have been continued or commenced against the Company by its former Name."

ASSIGNMENT. (See chap. 1, *ante p.* 17).

10.—The Assignee of a Policy does not come within the Gambling Act (14 Geo. 3, c. 48.)

In *Ashley* v. *Ashley*, 3 Simon 149, Sir L. Shadwell, V. C., said:—The purchaser of the Policy stands in the place of the original Assignor, and brings the action for the sum stated in his name, or that of his representatives.

But if A, who has no insurable interest, causes B to assure his life, A paying the premiums, and B assigning the Policy to him, it is held to be void as an evasion of the Gambling Act. This appears from the case of *Wainwright* v. *Bland*, noticed under the head of "Interest." See also *Hodson* v. *Observer Assurance* 8 Ellis and Blackburn 40, 26 L J. Q. B. 303, in which it was held by the whole Court (Coleridge, Wightman, Erle, and Crompton) that every Policy, whether *wagering* or not, must contain the name of the person really interested, or for whose benefit it was effected, inserted as such, and if not is void under s. 2 of the Gambling Act.

11.—Since 1 & 2 Vict., c. 110, s. 12, Assignments of Policies of Assurance are subject to the provisions of the Statute of Fraudulent Conveyances (13 Eliz., c. 5, see art. 12, chap. 1.)

In *Stokoe* v. *Cowan*, (1861) 29 Beavan 637, the Master of the Rolls set aside an Assignment of a Policy as fraudulent against Creditors, being of opinion that at the date of the Assignment everybody concerned well knew that the man was dying, and could not live out the year.

12.—An Assignment of a Policy as security for a debt, with a proviso for redemption, requires an *ad valorem* Stamp as a Mortgage.

This was held by the Court of Exchequer (1850) in the case of *Caldwell* v. *Dawson*, 5 Ex. 1, on the grounds that a Policy of Assurance, being a valuable article of sale, is "property" within the meaning of the Stamp Act, as it certainly would pass by a devise of all the testator's property. Baron Rolfe said, "Notwithstanding the decision in *Warren* v. *Howe*," (1823, 2 B. & C. 281—a previous case which this to that extent overrules) "I must own, that if I should be the purchaser of a judgment debt, or of a policy of assurance, I should insist upon having it stamped with an *ad valorem* duty."

13.—To preserve priority in case of Assignment, notice must be given to the Assurance Company, and it is desirable to obtain acknowledgment of the same in writing from the Office; but Companies disregarding notices run risk in case of payment, for the slightest notice may be held sufficient.

In *exparte Stright* (Montagu 502) a letter stating, "I am the holder of the Policy,"

and asking what price would be given for its surrender, was held sufficient. See remarks at p. 20, chap. 1. In *North British Insurance* v. *Hallett*, 7 Jur. N.S. 1263 (Chan.) a verbal notice was held sufficient, although not even entered in the books of the Company.

14.—It is frequently a condition of a Life Policy that it shall not be void in case of Suicide, if it has been assigned for a valuable consideration at some period (as six months) previous to the death.

Jones v. *the Consolidated Office* arose on a Policy containing this condition (26 Beav. 256, 28 L. J. Ch. 66), and it was held by the Master of the Rolls that a letter to the Plaintiff charging the Policy with a balance due to him, though on a floating account, satisfied the condition. See also *Cook* v. *Black* (1842). 1 Hare 390.

15.—If the Assignee pays money to keep up the Policy, it may be recovered in an action of debt, although the Assignment, by virtue of which it is paid, may be a deed under seal, containing no express covenant by the Assignor to repay the Premiums.

This was the decision of Lord Denman and Williams and Coleridge. J J. (1846). in *Barber* v. *Butcher*, 8 Q. B. 863.

16.—Where a Creditor assures the Debtor's life, but charges him with the Premiums, the Policy belongs to the Debtor, after the Debt has been paid off; and it would seem that the Creditor's original interest in the Debtor's life would merge, and that it is not necessary to prove it.

Holland v. *Smith* (1806), 6 Esp. 11; *Gotlieb* v. *Cranch*, 17 Jur. 686. Kelly on Life Annuities, 1835, p. 57.

So in the case of a Trustee. In *Collett* v. *Morrison* (1851), 9 Hare 162, R having effected a Policy on the life of another as her Trustee, having no interest in the life himself, sought to appropriate to himself the proceeds. In his proposal to the Office, he had declared himself Trustee for the life, but the Company had issued the Policy to him in his own name. The Company disputing his claim on the ground of want of interest, the Plaintiff as representative of the deceased, prayed in consequence, a declaration that R was her Trustee, and a decree against the Company for payment to Plaintiff, and the Court decreed accordingly.

17.—As a Policy is a *chose in Action* (see p. 17), the Assignee must sue in the name of the representatives of the deceased. The Court of Chancery can appoint a representative under the Acts of 1850 and 1852, (13 &14 Vic., c. 60; 15 & 16 Vic., c. 60.)

See also *Brazier* v. *Hudson*, 9 Sim. 1, *Desborough* v. *Harris*. 5 De Gex M. & G. 439, *Glynn* v. *Locke*, 3 Drury and Warren 11.

BAD HEALTH.

18.—If to an action on a Life Policy it be pleaded that the declaration of good health in the Policy was untrue, the Plaintiff is entitled to begin, as it lies with him to establish that which is the very condition of the Assurance.

This was the decision of Lord Denman in *Rawlins* v. *Desborough* (2 Moody and Robinson 70, 8 Carrington & Payne 321).

19.—Statements made by the deceased to third parties are good evidence (per Justice Grose, "not only good evidence, but the best which the nature of the case affords") to prove bad health.

Aveson v. *Lord Kinnaird & others*, 6 East 188, tried in 1805, before Baron Graham, and a new trial refused by Lord Ellenborough and Grose and Lawrence, J.J.

20.—As to spitting of blood, see *Geach* v. *Ingall*, 14 Meeson and Welsby 95.

By the expression "spitting of blood," is no doubt meant the disorder so called whether proceeding from the lungs, the stomach, or any other part of the body; still, however, one single act of spitting of blood, would be sufficient to put the insurers on enquiry as to the cause of it, and ought therefore to be stated. (C. B. Pollock.) If a man had spit blood from his lungs, no matter in how small a quantity, or even had spit blood from an ulcerated sore throat, he would be bound to state it. (B. Rolfe.) By spitting of blood must no doubt be understood a spitting of blood as a symptom of disease tending to shorten life. (B. Alderson.)

21.—As to fits, see *Chattock* v. *Shaw*, 1 Moo. & Rob. 498, "Warranty."

The Assured, in consequence of a fall, had had two epileptic fits within a short interval several years before the date of the Policy, but they had never recurred, and Lord Abinger charged the jury, that if they did not consider this evidence of a constitutional liability to fits, the non-statement of the circumstance was immaterial.

22.—As to Gout, see *Fowkes* v. *Manchester and London*, 3 Foster and Finlason, 440.

BANKRUPTCY.

23.—In most Policies it is provided, that in case of suicide, the Policy shall be void, except it has been *bonâ fide* assigned to any third party. An Assignment by Bankruptcy is not the kind of assignment contemplated by this exception. The interest there described means one acquired by contract upon a valuable consideration, not one arising merely by operation of law. An Assignment in Bankruptcy is made no doubt in consideration of past debts due from the assignor; but it does not confer an interest within the meaning of the exception. The exception was introduced by the Companies in order to facilitate the Assured's dealing with the Policy; but the expression "any third party," cannot be construed to mean a person who by operation of law becomes the assignee of the estate of the man whose life is insured, as a mere personal representative, to collect and administer the estate.

These principles were held by Lord Campbell, C. J., and Crompton and Hill, J.J., and confirmed on appeal in the Exchequer Chamber, in the case of *Jackson* v. *Forster*, 1 Ellis and Ellis 463, 29 L. J., Q. B., 8.

24.—Until notice has been given to the Office by the assignee of a Policy, it is in the "reputed ownership" of the assignor in case of his bankruptcy; and as being in his "order and disposition," it will be sold for the benefit of the creditors generally.

Williams v. *Thorp*, 2 Sim. 257.

Gibson v. *Overbury*, 7 Mee. & W. 555, was an action of trover by the assignees of a bankrupt, to recover a Policy of Assurance on his life, deposited by him with the defendants as a security for money advanced, but no notice had been given to the Office of such deposit. Lord Abinger said, "Suppose there had been an assignment in writing of this Policy to secure the debt, but no notice given to the Office, then it would fall within the cases that there had been no equitable transfer, because it was not completed, and that the instrument remained in the possession of the bankrupt notwithstanding the intended transfer, and if it was not complete in Equity, then the assignees would not be divested of their right to recover. But in the case of a mere lien from a deposit by a bankrupt, I believe there is no example of the assignees having been held entitled to maintain trover."

CONCEALMENT.

25.—Under Policies in the ordinary form, whether containing a warranty or not, if any material fact have been omitted to be stated, the Policy is void, although all the questions put may have been answered with literal truth.

The Proposal Form usually contains a general question, and under that question information must be given "of every fact which any reasonable man would think material." (Lord Tenterden, C.J.) This is to meet cases where there are "circumstances affecting the particular individual, not likely to be known to the Office, and which if they had been known would, no doubt, have been made the subject of specific enquiries." (Littledale, J.) *Lindenau* v. *Desborough*, 8 Barnewell and Cresswell 586, 3 Carrington and Payne 353. See also "Fraud." *Fowkes* v. *Manchester & London*, 11 W.R. 622.

26.—The materiality of any circumstance concealed is a question for a jury.

Huguenin v. *Rayley*, 6 Taunton 186, was an action tried in 1815 before Dampier, J. It had been concealed that the life proposed was in prison at the time of effecting the Policy A rule for a new trial was made absolute on the ground that it ought to have been submitted to the jury whether this was a material omission.

But the concealment must be of a fact known either to the assured or his referees.

In *Swete* v. *Fairlie*, 6 C. and P. 1 (an action tried before Lord Denman), the proposer had omited to state a previous illness from which he had suffered; but as it appeared that he was not conscious of what had happened to him when suffering under it, the Policy was held not to have been vitiated.

27.—An omission to state any fact does not vitiate the Policy, if the fact be already known to the Assurance Office.

Pimm v. *Lewis*, 2 Foster and Finlason 778, was an action on a Fire Policy. It was a condition of the Policy that it should be void if the Assured should have omitted to communicate any matter material to be known to the Company. Baron Martin told the jury that this clearly meant anything that was not already known to them or to their officers. Here however the matter was known to them; and the jury accordingly gave a verdict for the Plaintiff.

28—Policies are entered into upon an implied contract that every thing material shall be disclosed by the Assured.

ler Parke, Baron, in *Moens* v. *Heyworth*, 10 M. and W. 147, (see also "Agency.")

29.—Assurance Offices should put a general question to Referees, as to whether there are any facts within their knowledge affecting the life proposed not specified in the usual inquiries, as otherwise a Referee is not obliged to volunteer information, however material in his estimation, which is not required or pointed at by any questions, either particular or general, proposed by the Assurers.

Huckman v. *Fernie*, 1838, 3 M. and W. 505, per Lord Abinger. The evidence went to show that the wife, whose life was insured, had been examined by the Company, when she did not mention certain facts which it was supposed she knew to be material. The jury found that the *husband did not know those facts.* If the wife had been the general agent going to effect this Policy for her husband, her knowledge might be considered his knowledge for the purpose of effecting the Policy; but in this case the wife was not otherwise the agent of her husband than to answer particular questions, such as the Company might choose to ask her. No question was put to her of a kind calculated to elicit the particular facts said to have been concealed, and she gave general answers to the printed questions that were put to her.

CONTRACT OF INSURANCE.

30.—Life Insurance in no way resembles a Contract of Indemnity.

Baron Parke in *Selby* v. *India & London Office*, 15 C. B. 365, 24 L. J. C. P. 2. This was an action tried before Cresswell, J., and subsequently argued in the Exchequer Chamber on a Bill of Exceptions to his ruling. Baron Parke said, in delivering his judgment:—"The contract commonly called Life Assurance, when properly considered, is a mere contract to pay a certain sum of money on the death of a person, in consideration of the due payment of a certain annuity for his life, the amount of the annuity being calculated in the first instance according to the probable duration of the life: and, when once fixed, it is constant and invariable. The stipulated amount of annuity is to be uniformly paid on one side and the sum to be paid in the event of death is always (except when bonuses have been given by prosperous offices) the same on the other, and this species of assurance in no way resembles a contract of indemnity."

In *Hamilton* v. *Mendes*, 2 Burrow, 1198, Lord Mansfield (1761) laid it down that a Marine Insurance was a contract of indemnity, founded upon the extent of the damnification at the time the action is brought, and this decision was received for 50 years as governing the altogether dissimilar contract of Life Assurance. But that there is both insurances, the two transactions have nothing in common, and yet a similarity of title alone would seem to have led a succession of distinguished judges to most unreasonable decisions.

31.—The contract of Insurance is that in which a sum of money, as a premium, is paid in consideration of the insurers incurring the risk of paying a larger sum upon a given contingency.

C. J. Tindal, in *Paterson* v. *Powell*, 9 Bing. 320. This case arose upon an aleatory contract upon the event of an Imperial Brazilian Mining Share reaching a specified value on the share list by a certain day, which was set aside as forbidden by the Gambling Act. The contract of Life Insusance has been defined to be that in which one party agrees to pay a given sum upon the happening of a particular event contingent upon the duration of human life, in consideration of the immediate payment of a smaller sum, or certain equivalent periodical payments by another.

Bunyon on the Law of Life Assurance, 1853, p. 1. Ellis on the Law of Insurance, 1832, p. 97.

32.—The use of Life Assurance, in some countries of Europe, may be carried back to a remote time.

Scaccia, in his Treatise *De Commerciis*, one edition of which (apparently not the earliest) bears date 1620, describes at length the benefits and incidents of the contract, and the legal doctrines then applying to it. Emerigon *Treatise on Insurances*, Marseilles, 1783, p. 198, English Edition, 1850, p. 17) says, Life Assurance is not properly termed so, but is really a wager; and notes Roccus (resp. 23), "Fiunt per viam sponsionum vulgariter dictarum scommesse."

CREDITOR.

33.—A Creditor has an insurable interest in the life of his Debtor.

Godsall v. *Boldero*, (9 East 71), was an action on a Policy on the life of the Right Hon. Wm. Pitt, taken out by one of his creditors. Mr. Pitt's debts, it is well known, were after his death defrayed by the Nation, and therefore no damage accrued to the creditors. Lord Ellenborough, when delivering judgment, remarked, "The interest which the plaintiffs had in the life of Mr. Pitt was that of creditors; a description of interest which has been held in several late cases to be an insurable one, and not within the prohibition of the statute 14 Geo. 3, c. 48, s. 1;" but he proceeded to say (what has since been overruled), "This action is in point of law founded upon a supposed damnification of the plaintiffs occasioned by his death, existing and continuing to exist at the time of the action brought; and being so founded, it follows of course that if, before the action was brought, the damage which was at first supposed likely to result to the creditors from the death of Mr. Pitt, was wholly obviated and prevented by the payment of his debt to them, the foundation of any action on their part, on the ground of such insurance, fails." It is now settled (see below) that Life Assurance is not a Contract of Indemnity.

34.—If the debtor has agreed to pay his debt by instalments over a given period, the Policy may extend over that period.

Lindenau v. *Desborough*, 3 Carrington and Payne 353. Lord Tenterden:—"It appears that the plaintiff's bank were creditors of the former Duke Augustus (of Saxe Gotha), and that Duke Frederick (the IV) having undertaken to pay the debt by instalments in five years, the Plaintiff, as the director of the bank, effects an insurance on Duke Frederick's life for those five years. Such being the facts, I think that the plaintiff has an insurable interest."

35.—The Creditor may recover upon the Policy, even though the executors of the person whose life had been assured have paid the debt.

Dalby v. *India & London Office*, 15 C. B. 365. Baron Parke said, that to decide otherwise, would be contrary to justice, fair dealing, and common honesty. The only effect of the Gambling Act is to make the assured value his interest at the true amount when he makes the contract.

In *Law* v. *London* INDISPUTABLE *Office*, 1 Kay and Johnson 223, 24 L. J. Ch. 196. V. C. Wood remarks, that the Assurance Company was in the same position, and always would be in the same position, whether the object of the assurance was effected or not.

Even while *Godsall* v. *Boldero* was law, few offices ventured to dispute a Policy on the ground of the cessation of the interest of the assured in the life. It is so obviously contrary to every principle of fairness, that a Society should receive payment year after year for a risk of a certain and defined amount, and then, when the Policy becomes due, defeat it by a mere technical objection, that any office doing so would seriously damage its reputation. It is a singular circumstance, that one of the few instances in which this unworthy defence has been attempted, was afforded by a Society the very title of which proclaims its Policies to be "indisputable." It is hardly necessary to add, that that office is not now in existence. However the peculiar circumstances of the case may have justified that Society in the course they adopted, the result upon them was to weaken their position with the public, and to hinder the accession of new members, and a very short time after this unwise law suit, they found it judicious to transfer their business to another office. (See Art. 67.)

DEATH.

36.—If Death occurred after the expiration of the Policy, the Office would not be liable, although the cause of Death had arisen before.

This was remarked by Willes, J. 1786, in *Lockyer* v. *Offley*, 1 Term Reports (Durnford and East) 252, which was an action on a Sea Policy. "Suppose an insurance on a man's life for a year, and some short time before the expiration of the term he receives a mortal wound, of which he dies after the year, the insurance office would not be liable."

37.—*Unless the Policy provides otherwise*, it is not necessarily void in case of death by suicide through *temporary insanity*. See "Policy."

Horn v. *Anglo-Australian Office*, 30 L. J. Ch. 511, 9 W. R. 359. V. C. Wood said, "I have no doubt in my own mind that no principle of public policy interferes to prevent a person insuring against the consequences of his insanity, in whatever unhappy form it might develope itself, just as he might insure against any other calamity by which his life might be determined. I am of opinion, therefore, that the Policy must be held to be valid."

38.—The burden of proof of the event having happened will, in all cases, rest with the Assured, who must tender due evidence to the Assurers. In the Policy it is usual to stipulate for satisfactory evidence; this does not mean such as the mere caprice of the Insurers may require, but satisfactory is in fact equivalent to sufficient.

Strong v. *Harvey*, 3 Bing. 304, was a case in a Mutual Marine Insurance Association (1825), where the Committee refused to make an adjustment at the request of the Assured; it was held that he might sue on the Policy notwithstanding.

39.—If a person goes abroad, and is not heard of, a presumption of death arises at the end of seven years, by 19 Car. 2, c. 6; but sufficient enquiry must be made, and the Assurance Office paying upon presumptive proof of death, is entitled to security for repayment, if the party should afterwards turn out to have been alive.

In re Creed, 1 Drewry 235: *In bonis J. Kemp*, 17 Jur. 240 Prerog Ct. See 6 Ann. c. 18, *Scratchley on Copyholds*, p. 93.

DEBT.

40.—As to difficulties which sometimes arise in the mortgaging of Policies see

Myers v. *United Guarantee Assurance*; *United Guarantee* v. *Cleland*, 7 De Gex, Mac N. & Gor. 112, on appeal, where there was a difference of opinion between the Lords Justices, as to the priority of claim of successive holders of a Policy.

41.—Policies of Life Assurance are very serviceable to Creditors, as, by assuring the amount due to them they can obtain, at a trifling cost, a compensation for the loss which the death of their Debtor might occasion. Care should be taken, however, in framing the security, to insert provisions capable of carrying out the objects contemplated.

In *Brown & others* v. *Sir Robert Price*, 27 L. J. 290 C. P., money advanced to pay premiums was held not to be recoverable against the defendant, as the mortgage deed did not contain a covenant to repay such advances. But in *Earl Fitzwilliam* v. *Sir Robert Price & others*, 4 Jur. N. S. 889 Ch., the money so advanced was allowed against the estate in a mortgagee's suit, after the death of the borrower.

42.—As to the position of the Assignee in cases of Bankruptcy, see

Re Storie's Trust, 28 L. J. 888 Ch., where the title of the Assignee in Insolvency was preferred by V. C. Stuart, to that of the personal representatives of the deceased, the Policy having been inserted in the Schedule.

43.—In a Mutual Assurance Society, Policy-holders may be made liable for the whole of the debts of the Society.

This was expressly enacted in 7 & 8 Vict. c. 110, ss. 3, 66. See the Companies' Act 1862, 25 & 26 Vict. c. 89. *Stevens* v. *Security Mutual Assurance*, 28 L. T. 250 Q. B., was a case where a member, who had become entitled in part to his assurance, was held to be liable as a contributory. In that Society, calls of large amount were made upon the Policy-holders.

DEBTOR.

44.—A Debtor has no interest in the life of his Creditor.

Hebden v. *West*, 1863, 3 Best and Smith, 579; 32 L. J. 85 Q. B., 11, W. R. 423, was a case where the Debtor had insured his Creditor's Life, on a promise from the Creditor that he would not enforce the debt as long as he lived. Held that this did not create an insurable interest.

DEVISEE.

45.—An expectant devisee has no insurable interest, but the purchaser of such a devise has.

Cooke v. *Field* (1850), 15 Q. B. Reports 460, 19 L. J. Q. B. 441, was an action upon an assignment by defendant to plaintiff of a Policy in the United Kingdom Office. Lord Campbell said, "If it is correctly called an insurance on life, it is not without an interest within the meaning of the Statute, for although Field has no vested interest in the property of Mr. Smith which he could sell, a promise to assign a devise which he expected would be a sufficient consideration to support a promise to pay for it on a contract not under seal, and the purchaser of such an expected devise would have an interest so far as to prevent his Policy from being considered the gaming or wagering prohibited by the Statute." Mr. Bunyon remarks, that the doctrine in this case is not perhaps very obvious, as it might be thought the purchaser could not be in a different position to that of the vendor in respect of his interest; and this undoubtedly would be the case as regards the property; but it appeared that the contract itself being one that the law would recognise, became an insurable interest in the purchaser, so as to entitle him to secure himself by insurance against the contingency of the death of the proposed testator, without having made the devise.

DISORDER.

46.—In answering the question, "Have you ever had any disorder tending to shorten life," it has been held that it is not necessary to disclose a disorder which has not usually that tendency, under which the person had suffered.

Watson v. *Mainwaring*, 4 Taunton 763, 1813. J. Chambre said, "All disorders have more or less a tendency to shorten life, even the most trivial; as, for instance, corns may end in a mortification. That is not the meaning of the clause. If dyspepsia were a disorder tending to shorten life within this exception, the lives of half the members of the profession of the law would be uninsurable." J. Gibbs, "According to the rule contended for, the insured, to be insurable, must have no disease at all." See also *Fowkes* v. *Manchester and London Assurance*, reported at length under the head of "FRAUD."

EXTRA PREMIUMS.

See "Policy" (Art. 93.)

FORFEITURE.

47.—In cases of doubt, the Court will lean in favour of that interpretation which will not work a forfeiture of the Policy.

Anderson v. *Fitzgerald*, 4 House of Lords cases 484, was an appeal against a decision which had been confirmed by the Court of Exchequer Chamber in Ireland. The House requested the assistance of the judges, who advised them that there were only two questions for the jury on the particular form of policy;—were the statements false—were they made in obtaining or effecting the policy. The following important remarks were made by their Lordships in giving judgment (July 14, 1853); Lord Chancellor Cranworth:—"The direction of the jury ought to have been, 'You are to ascertain whether what was then stated was untrue, was false.' Whatever interpretation may be given to the word 'false,' if it was false, there is no question as to whether it was material or not, the parties having stipulated that if it was false the policy should be void. Lord Brougham:—"The truth of the statement, it being part of the contract, not its materiality, was in issue." Lord St. Leonards:—The policy "*is of course prepared by the Company, and if therefore there should be any ambiguity in it, must be taken according to law, more strongly against the person who prepared it.* A policy ought to be so framed, that he who runs can read. *It ought to be framed with such deliberate care, that no form of expression by which, on the one hand the party assured can be caught, or by which on the other the Company can be cheated, should be found on the face of it.* Nothing ought to be wanting in it, the absence of which may lead to such results. When you consider that such contracts as these are often entered into with men in humble conditions of life, who can but ill understand them, it is clear that they ought not to be framed in a manner to perplex the judgment of the first judges in the land, and to lead to such serious difference of opinion among them. I think that your Lordships and every court of justice should endeavour to give such a construction to a policy of this nature, as will afford a fair security to the person with whom the policy is made, that, upon the ordinary construction of language, he is safe in the policy which he has accepted. I am quite sure, if policies of this nature are to be entered into, and such doubts are to be raised, as have been raised in this case, that that very important branch of insurance—life insurance—will become very distasteful to people, and that no prudent man will effect a policy of assurance with any Company without having an attorney at his elbow to tell him what the true construction of the document is. I think the Company was right enough in resisting this claim, but I cannot think the Company to be right in so framing a policy."

Jones v. *the Provincial Insurance* (3 C. B. [N. S.] 65, 26 L. J. C. P. 272) is another case bearing on this subject. The Court of Common Pleas decided in 1857, that "It is clear that the underwriters may, in any particular case, limit their right to that of being informed of what is in the knowledge of the Assured, not only as to its existence in point of fact, but also as to its materiality, and in our opinion that is the effect of the limited declaration required in the present case, as to disorders or circumstances tending to shorten life, or to render an assurance upon the life insured more than usually hazardous."

48.—If, after having become acquainted with circumstances causing a forfeiture, the Company continues to receive the premiums, it amounts to a *waiver of the forfeiture.*

Wing v. *Harvey*, 5 De Gex, MacN. & Gor. 265, 23 L. J. Ch. 511, (1854). Lord Justice Knight Bruce held that:—"The directors taking the money were and are precluded from saying that they received it otherwise than for the purpose and on the faith for which, and on which Mr. Wing expressly paid it." L. J.

Turner :—"The office undoubtedly received the money from their agents, to whom it had been paid on express terms and conditions."

Armstrong v. *Turquand* (9 Irish Common L. Rep. 32), was an action against the Official Manager in Winding up of the Deposit and General Office, tried in the Court of Common Pleas in Ireland, in 1858. Judge Christian said :—" The true office and function of clauses of this kind " (that is, those under which the forfeiture arose) " in contracts, is merely to serve as a shield for the protection of the party who inserts them, if he shall think fit so to use them ; and gross as, upon the averment of this record, must be taken to have been the fraud of the Plaintiff in obtaining this Policy, I cannot but think that we should be giving effect to a fraud by this Company far more monstrous, if after they have, with full knowledge of the fraud practised upon them, deliberately and for pecuniary considerations, overlooked it and affirmed the substance of the Policy, we should suffer them now, after the consequences to the Assured have become irreparable, to tell his representatives, his family, and his creditors, that during all the time when they were putting money in their pockets on the faith of the full validity of the Policy, it was in reality null and void." J. Keogh—"Many frauds might be perpetrated on the community at large, if such practices were to be encouraged." J. Ball :—" See what an opening to fraud is afforded to a Company, if they are to be at liberty to cause the party to be under the impression to the day of his death, that the Policy is a valid security, and then when he is dead, who if living could possibly have explained satisfactorily the circumstances of alleged fraud in the effecting of the Policy, to insist, for the first time, that they are not bound to pay it ; and this, where perchance the evidence which, if forthcoming, would have rebutted the charge of fraud in the obtaining of the Policy has, by the effect of time or otherwise, ceased to be in existence." The decision of the Court was therefore given against the Company, though C. J. Monahan dissented from the judgment, remarking :—" I cannot bring myself, by any act of mine, to open this Court to parties admitting themselves to have been guilty of a gross fraud."

49.—As to the Return of the Premiums, see " Premiums."

50.—In most cases, unless specially excepted, a Policy will be vitiated, and the premiums already paid liable to be forfeited to the Company granting the Assurance in any of the following events :—

1°.—If the Premium be not regularly paid.

2°.—If the Policy be taken out upon a life in which the Assured has no pecuniary interest.

3°.—If the Policy be not taken out in the name of the person really interested, whether a wagering Policy or not.

4°.—If any misrepresentation be made at the time of effecting the Policy.

5°.—If the policy be obtained for a fraudulent purpose.

6°.—If the life assured commit suicide (whether of unsound mind or not), or die by duelling, or the hands of justice.

7°.—If the life assured go beyond the limits allowed him by the endorsement on the Policy.

FRAUD.

51.—Fraud vitiates all Policies :—misrepresentation or suppression of a material point will vitiate all policies not " indisputable " :—a misrepresentation, even if immaterial, will vitiate a Policy containing a " warranty."

Every person effecting an assurance should therefore qualify his statement by

such words as, "to the best of my belief," and should avoid positive affirmations, unless he is certain as to the facts. See the case of *Stackpole* v. *Simon*, 1779, cited in Mr. Justice Park's Treatise on Insurance, p. 932 (8th Edition.) Ellis on Insurance, 105. Bunyon on Insurance, 32.

Anderson v. *Thornton*, 1853 (8 Exch. 425), was an action on a Marine Insurance Policy. Mr. Baron Parke said:—"In cases of insurance, material misstatement or concealment vitiates the contract; and whether it be fraudulently made or not, is a matter which is wholly immaterial, except with reference to return of the premiums."

Anderson v. *Fitzgerald* also bears on this point. It has been already referred to under the head of "Forfeiture." In order to void the Policy, the false statement must be made in or about the obtaining or effecting of the insurance. (Baron Parke.) Even if it be material, if there be no fraud in it, and it form no part of the contract, it cannot affect the right of the party. (Lord Chancellor Cranworth.) Lord St. Leonards, in giving judgment on this case, observed:—"The Courts of Law, observing how very often Companies of this nature have been subjected to frauds, have advised those Companies to protect themselves by a sufficient provision against the commission of fraud, and it has led to such stringent provisions as those we find in this case; provisions which, I am bound to say, unless they were fully explained to the parties, will lead a vast number of persons to suppose that they have made a provision for their families by an insurance of their lives, upon the payment out of their income of perhaps a considerable portion of it, when, in point of fact, from the very commencement, the Policy was not worth the paper upon which it was written; and, as in the present case, the Companies take care to go beyond the law; that is, the law has itself thrown a shield of protection around them, and if a statement which is not a warranty, but a representation, be made contrary to fact, a material statement, that will by law, without any provision to that effect in the contract, avoid the Policy. But then, if the statement was not untrue to the knowledge of the person making it, he is entitled to recover the sums which he has paid: so that although provision for the family is not obtained, yet there is no actual damage done to the fortune of the man. He is disappointed in his object, but the money which he has accumulated and paid for his insurance, is repaid to the family. This Company has taken care that no such consequence shall ensue; and that if any statement within their contract has not been truly represented, the man's family shall not only lose the benefit of the Policy, but shall not be able to recover a single shilling of the premiums paid, however numerous they may have been."

52.—The recent leading case of *Fowkes* v. *Manchester and London Assurance*, 3 Best & Smith 917, 32 L. J. 153 (Q. B.) 11 W. R. 622, is so important, as affording a review of the Law on the question, that we give the report in detail:—

1863—May 1. *Fowkes & Another, Executors, &c.* v. *The Manchester and London Life Assurance and Loan Association.——Insurance on Life—Policy—Declaration—Misrepresentation.*

An action upon a policy of insurance upon the life of F. By the policy it appeared that F. had agreed that a declaration delivered to the defendants should be the basis of a contract between him and them. The Policy contained a proviso that "if any statement in the said declaration (which declaration shall be considered as much a part of the policy as if the same had been actually set forth therein) was untrue, or if the assurance by the policy should have been effected by or through any wilful misrepresentation, concealment or false averment whatsoever," &c.; "that the said policy should be void, and all monies paid in respect thereof should be forfeited." The declaration contained answers to a number of questions, and then continued, "I do hereby declare that the above-written particulars are correct and true throughout; and I do hereby agree that this proposal and declaration shall be the basis of the contract between me and," &c.; "and if it shall hereafter appear that any fraudulent concealment or designedly untrue statement be contained therein, then all the money

which shall have been paid on account of the assurance made in consequence hereof shall be forfeited, and the policy granted in respect of such assurance shall be absolutely null and void." Breach, that F, had died, and that the defendants did not pay. The defendants pleaded that divers statements in the declaration were untrue, and that divers of the particulars in the declaration alleged to be correct and true were incorrect and untrue, by reason whereof the said policy was void:—Held, *a bad plea, inasmuch as it appeared from the policy and declaration, when taken together, that the policy was not avoided by a misrepresentation, unless such misrepresentation was wilful and designed.*

Declaration by the plaintiffs as executors of Henry Fowkes, for that by a policy of assurance, bearing date the 31st of December, in the year of our Lord 1860, made and granted by the defendants, and duly signed and sealed as by law required, after reciting that the said Henry Fowkes had proposed to effect an assurance with the defendants in the sum of 1000*l.* upon his own life, for the whole continuance thereof, and that he had delivered to them a declaration therein mentioned and described, which declaration he had agreed should be the basis of the contract between him and the defendants, and that the said Henry Fowkes had paid to the defendants the sum of 43*l.* 8*s.* 4*d.* as a premium for the said insurance, until the 1st day of January in the year of our Lord 1862, it was by the said policy witnessed and declared that if the said Henry Fowkes should die before or upon the first of January 1862, or live beyond such day, and he or his assigns should on or before that day, and on or before the 1st day of January in every succeeding year during the continuance of that assurance, pay at the office of the association at which the policy was effected, or within thirty days thereof, the premium of 43*l.* 8*s.* 4*d.*, then the property of the said association should be liable according to the provisions of the deed or deeds of settlement of the said association, but not otherwise, to pay the executors, administrators or assigns of the said Henry Fowkes, within three calendar months after satisfactory proof of his death should have been received at the office of the said association at which the said policy was effected, the sum of 1000*l.*, and such further sum or sums as, having under the provisions of such deed or deeds been apportioned as a bonus to the said policy, should have been added to the sum thereby assured, unless an equivalent for such further sum or sums should have been paid or allowed to the party entitled thereto. Provided always, that if any statement in the said declaration (which declaration should be considered as much a part of the said policy as if the same had been actually set forth therein) was untrue, or if the assurance by the policy now in recital made should have been effected by or through any wilful misrepresentation, concealment or false averment whatsoever, or if the said Henry Fowkes should go to any place beyond the limits of Europe, with certain exceptions therein specified, or, if being or becoming a military, naval, or preventive service man, he should enter into actual service without the previous licence of a board of directors of the association (except for the exclusive purpose of defending the country from actual invasion), or if he should commit suicide, or die by duelling, or by the hands of justice, the said policy should be void, and all monies paid in respect thereof should be forfeited to the said association; but in case of such death by suicide, duelling or the hands of justice (subject as therein mentioned), provided nevertheless that the capital, stock and other the property of the said association remaining at the time of any claim or demand made, unapplied and undisposed of and inapplicable to prior claims and demands in pursuance of such deed or deeds, should alone be liable to make good all claims and demands upon the said association in respect of the said policy and all other policies then present and future, and instruments securing annuities. And the plaintiffs say that the said declaration above and in the said policy mentioned and referred to was and is in the words and figures following, that is to say.

The declaration was then set out in full. It was headed "Life Proposal and Declaration," and contained the usual questions and answers as to the age, residence, habits, state of health, &c. of the plaintiff, the state of health and age of his parents, &c., and then continued:

"Declaration.

"I do hereby declare that the above-written particulars are correct and true throughout; and I do hereby agree that this proposal and declaration shall be the

basis of the contract between me and the Manchester and London Life Assurance Association; and if it shall hereafter appear that any fraudulent concealment or designedly untrue statement be contained therein, then all the money which shall have been paid on account of the assurance made in consequence hereof shall be forfeited, and the policy granted in respect of such assurance shall be absolutely null and void.

"Signed by me this 26th day of December, 1860. (Signature) "Henry Fowkes."

And the plaintiffs say that the said Manchester and London Life Assurance Association referred to in the said declaration are the defendants, and the said Henry Fowkes in the said declaration mentioned is the said Henry Fowkes deceased in the declaration in this cause mentioned. And afterwards, and whilst the said policy remained in force, the said Henry Fowkes died, and all conditions were fulfilled, and all things happened, and all times elapsed necesary to entitle the plaintiffs, as such executors as aforesaid, to payment before suit of the said sum of 1000*l*. Breach—That the said sum was unpaid.

First plea—That the said declaration in the said policy named was a declaration made and signed by the said Henry Fowkes, and that at the time of the making and signing of the said declaration, and at the said time of the delivering of the said declaration in the said policy mentioned, and at the time of the making of the said policy, there were divers statements made by the said Henry Fowkes in the said declaration which were untrue, and that divers of the particulars in the said declaration alleged to be correct and true were incorrect and untrue, and by reason whereof and of the said proviso in that behalf the said policy became and was void.

Demurrer and joinder in demurrer.

Karslake, Q.C. (*Huddlestone, Q.C.* & *Prentice* with him), in support of the demurrer:—The question to be determined is, whether an untrue statement made by the plaintiff with a belief that what he stated was the truth, will avoid this policy, and prevent him from recovering. It is submitted that that is not the true construction, and that the policy will not be avoided by any statement which is not 'designedly' untrue. The contention of the defendants must go to this length, that if in the declaration the plaintiff had stated that his father had died at the age of forty-three, whereas he had died at the age of forty-two, the policy would be avoided. They will rely upon the proviso in the policy, that if any statement in the declaration was untrue, &c., the policy should be void; but the proviso is to be construed by looking at the declaration, and then it will be found that only a 'wilfully' untrue statement can be intended, for the declaration is: "I do hereby agree that this proposal and declaration shall be the basis of the contract, and if it shall hereafter appear that any fraudulent concealment or designedly untrue statement be contained therein, then all the money which shall have been paid, &c., shall be forfeited, and the policy granted in respect of such assurance shall be absolutely null and void." An insurer who has signed that declaration would be misled if a statement which was not designedly untrue could be said to avoid the policy; and if the earlier words in the proviso could bear the construction contended for by the defendants, the latter words, as to the "wilful misrepresentation, concealment or false averment whatsoever," would be useless and superfluous, for it would not be necessary to say anything about "wilful" or "fraudulent." The declaration in this case is framed upon the decision in *Anderson* v. *Fitzgerald* (1), where it is said that the truth of the statement, and not its materiality, was in question. If, however, the construction contended for by the defendants is adopted, it will be open to the observations made by Lord St. Leonards in *Anderson* v. *Fitzgerald* (1), [p. 50 ante] that provisions are introduced in these cases which, "unless they are fully explained to the parties, will lead a vast number of persons to suppose that they have made a provision for their families by an insurance on their lives, and by payment perhaps of a very considerable portion of their income, when, in point of fact, from the very commencement the policy was not worth the paper upon which it was written." Here the meaning was, that the policy should be void if the statement was wilfully false, and therefore the plea is bad.

Mellish, Q.C. (*Shee, Sergeant,* and *T. Jones* with him), contrà.—Upon the language

(1) 4 H.L. Cas. 484. See "Forfeiture" art. 47, and p. 50, 51, ante.

of this policy any untrue statement in the declaration will make the policy void." "Untrue" means "incorrect." There is nothing in the declaration to shew that that is not the proper construction, nor is there anything in the declaration which really contradicts the proviso in the policy; but even if that was the case, the contract to which the Court is bound to look is that which is contained in the policy.

[CROMPTON, J.—I think "untrue" in the proviso and in the declaration must be construed to mean the same.]

No; the premiums are to be forfeited if the statement is wilfully untrue, and the policy is to be void whether the untruth be wilful or not. Everything which is stated in the proviso is to be taken as a condition precedent. Suppose there was no policy, and the Court had to construe the declaration; it would mean that if there was any designedly untrue statement, the premiums were to be forfeited, but if not designedly untrue, they were not to be forfeited. The declaration was signed before, and as a proposal for the policy, and there is no reason for saying that some addition to the declaration may not be inserted in the policy. In *Cazenove* v. *the British Equitable Assurance Company* (2) the construction now contended for was put on the word "untrue," and it was said that it did not matter whether it was material or not.

[COCKBURN, C.J.—But may not the construction in the present case be, that, taking it altogether, the parties intended that the policy should be void if the statement was untrue and also fraudulent?]

No; the defendants would not be sufficiently protected by the use of the words *designedly* or *fraudulently untrue.*

[BLACKBURN, J.—If you are right, it is quite clear that the defendants use words which are calculated to mislead their customers.]

No; the declaration is, that "the above-written particulars are correct and true," and the plea is good, alleging that divers of the particulars alleged to be correct and true, were incorrect and untrue. But. further, the words in the proviso shew that the parties must have contemplated something in addition to the declaration.—He also referred to *Duckett* v. *Williams* (3).

Karslake, in reply.—There is no doubt that an insurance company may contract on terms which will make them absolutely secure from all untrue statements, by compelling the insurer to warrant the accuracy of every statement, but the question is whether that has been done in the present case. *Cazenove* v. *the British Equitable Assurance Company* (2) has no bearing upon the present question, for the condition in that case must have been read as meaning a *statement false or even untrue.* The proper way to construe this contract is by incorporating the policy and the declaration, and then it appears that a statement designedly untrue must have been intended. The proviso may have been inserted to meet the case of the policy being obtained by some untrue statement other than those mentioned in the declaration, and which was made upon further investigatious after the declaration had been made. Lastly, the words, being framed by the defendants, are to be construed most strongly against them.

COCKBURN, C.J.—I am of opinion that our judgment ought to be for the plaintiffs. In the first place, we have to see what is the effect of the declaration, which by agreement between the parties is to be the basis of the contract. It is to the effect that the particulars given in answer to the questions propounded by the company are correct and true throughout. It then goes on to say that the declaration shall be the basis of the contract, and that if it shall thereafter appear that any fraudulent concealment or designedly untrue statement be contained therein, then all the money which shall have been paid shall be forfeited, and the policy be absolutely null and void. It is sought on behalf of the defendants to construe that in the disjunctive, so that not only if any fraudulent or designed concealment, or designedly untrue statement should be contained in the answers, the policy was to be void and the premiums forfeited, but that if any incorrect or untrue statement, however honestly and sincerely made, even if the person making it believed that it was true, should occur in the answers to the questions, the consequence should follow that the policy should be null and

(2) 6 Com. B. Rep. N.S. 437; 28 Law J. C.P. 259. See "Policy," p. 66. (3) 2 Cr. & M. 348; 3 Law J. Rep. (N.S.) Exch. 141. See "Misrepresentation" and "Premium.'

void. Now the first answer to this proposed construction which presents itself is, that all the part which relates to the fraudulent concealment and the designedly untrue statements would be superfluous and unnecessary, because upon that construction it is only a reiteration *in extenso* of that which is already involved in the term "untrue." I do not think, therefore, that that is the fair construction. I quite agree with the argument that in construing language of this kind, prepared by the company and submitted by them to the party effecting the insurance, for his signature, it ought to be read most strongly against the company, according to the maxim, "*verba chartarum fortius accipiuntur contra proferentem.*" Then I think that that which follows, and which relates to the fraudulent concealment or designedly untrue statement is explanatory of what is meant by the terms "correct" and "true." This is the sense in which, as it appears to me, the agreement would be understood by a layman who was about to enter upon an insurance transaction of this kind, and in which he would read such a declaration if it was submitted to him for his signature. That is to say, "I agree that the correctness of the answers to the questions propounded to me shall be the basis of the contract between us, and that if I am guilty of any fraudulent concealment or designedly untrue statement in the answers, the policy shall be null and void, and not only that, but the premiums shall be forfeited;" but then it is said, that if we turn to the contract in the policy itself, we shall find that it varies from the declaration, and that the policy is the true statement of the contract between the parties. I do not think that that is correct to the full extent. The declaration is stated to be embodied in the policy, and is as much part of it as if it had been set out therein. Then the language of the policy is, that if the statements in the declaration are untrue, the policy is to be void. What is the meaning in the policy of the words "if any statement in the said declaration be untrue?" To ascertain that we must turn to the declaration itself, as though it had been there set forth in that part of the policy, and then we find, according to the language of the defendants themselves, that in order to avoid the policy the statement must be fraudulently untrue, that is, untrue to the knowledge of the parties. Then it is said that the next paragraph is to be read in connexion with the other, "or if the assurance by the policy now in recital shall have been effected," &c., and so forth. Now, it appears to me that one of two things presents itself, either that it is a reiteration of the language used in the declaration, or that it is to be taken as something more than the declaration, and if so we must see how we can construe it so as to reconcile it with the terms of the declaration, and I think that that may be done, as suggested by Mr. Karslake, by reading it as referring to anything that is independent of the declaration, as in the case of the concealment of anything in the negociations that may take place between the parties proposing to insure irrespective of the answers to the enquiries contained in the declaration. It may be that the answers will require or lead to further investigations which would not be included within the terms of the original question or within the terms of the declaration, and if upon those further inquiries, in any other part of the negociations which may take place between the parties, there should be a fraudulent concealment or untrue statement. to the knowledge of the party, that may be met by this part of the proviso. We may then read the declaration and the stipulation contained in it and the provisoes together, so as to make one consistent whole. If the opposite mode of reading it should be the one to be adopted, then I think that, inasmuch as the declaration is to be the basis of the contract, we must interpret the language used there by the light thrown upon it by the language used in the declaration. In the result, I am of opinion that the true construction of this policy is, that so long as the person insuring honestly makes a statement which he believes to be true, although in the end it may turn out to be incorrect in point of fact, it will not vitiate the policy.

CROMPTON, J.—I am of the same opinion. When the policy and the declaration are declared to be one and the same, we must look at the whole to see what the intention of the parties was, and one part will assist us in construing the other. Here the declaration is to be the basis of the contract; so that whatever it means is to be part of the contract between the parties. Mr. Mellish says that everything contained in the policy is a condition precedent to the plaintiff's right to recover; but

I cannot help thinking that the real meaning is that put on it by Mr. Karslake; and that any one looking at the declaation would put that meaning upon it, and treat it as being the key to the whole contract. We must first consider what the contract really means; and in order to find that out, it is not immaterial to observe that numbers of the matters mentioned in the policy are not material at all; therefore, we must see that the parties make it part of the condition that these things should be true, literally and actually true. No doubt, if they chose to go that length, they may do so. And I think, on the authority of the cases which have been cited before us, that if it stood on the words of the Policy alone, the Policy would be avoided if the statements in the declaration were not true in point of fact. But here the latter words in the declaration qualify what went before, and point out what the parties really mean. It is pretty much the same as if it had been put in under a *nota bene*: "If you tell a wilful lie about these things, the policy shall be void, and you shall lose your premiums;" and then the plaintiffs say: "I agree that the proposal and the declaration shall be the basis of the contract, and if it shall hereafter appear that any fraudulent concealment or designedly untrue statement be contained therein," &c., then the consequences shall ensue. If it stopped at the word "forfeited," I should have thought that they were looking at those cases where fraud or no fraud makes a difference as to the return of the premiums; but then it goes on to say, "And the policy granted in respect of such assurance shall be null and void"; that is, the defendants make the insurer agree, among other things, that if he tells a wilful lie, the policy shall be null and void; that is, if positively untrue in the sense of being designedly untrue. But then it is said that there are words in the policy which govern this; but I doubt about that, because I think that the declaration is emphatically made the basis of the contract, and I thought very early in the argument that these statements might be read together. The policy states that the declaration shall be considered as much a part of the policy as if the same had been actually set out therein, which comes to the same as if it had been written in the policy, "if any statement in the declaration is untrue." But then it is said that there is contradiction, because the one points to statements which are wilfully and designedly untrue, and the other to anything simply untrue; but I think that they may be read together, and that the "untrue," in the sense of that declaration which is made the basis of the contract, is the "designedly untrue" described in the declaration; if it be read so, I find no difficulty in construing it. It means, if the statement is untrue, in the sense in which "untrue" is used in the declaration, that is, designedly untrue. The proviso then goes on, "If the insurance should have been effected by or through any wilful misrepresentation, concealment or false averment whatsoever"; and then provides for a number of other events happening. There are many matters and questions of the nature of a concealment or misrepresentation which, not being asked in the proposal and declaration, might never be answered, that are necessary to be stated. That is the reason for putting in those words, and the company carefully abstain from speaking of any matters "contained therein." I think it means if the policy is untrue in the sense used in the declaration, or if the assurance shall have been effected by or through any wilful misrepresentation, even although not stated in the declaration, the policy shall be void. The whole may be construed as one entire clause of the same instrument, and in one and the same sense, and then the plaintiffs will be entitled to our judgment.

BLACKBURN, J.—I quite concur in the opinion that the plaintiffs are entitled to our judgment. I was at first a good deal impressed with the way the case was put by Mr. Mellish, but after consideration I have come to the conclusion which my Lord and my Brother Crompton have arrived at. In cases of this kind there is a distinction, which ought to be borne in mind. A warranty is a stipulation in the policy that something is true, and unless the warranty be absolutely and faithfully accurate, the policy is void. So also in cases of misrepresentations, where the insurance has been obtained by a representation of something which is not correct, or by the concealment of a material fact. The distinction between such cases and the present is this, that where the policy is void owing to a breach of the warranty, or owing to misrepresentation

or concealment, the premiums paid can be recovered back if it turns out that the policy is void. But then the parties may make a stipulation in a life policy, as they have done in this case, that the premiums shall not be recovered back, but shall be absolutely forfeited. The case then comes to be one entirely upon the construction of the policy. This is a case of that nature. In the proviso of the policy a stipulation is made that the declaration is to be taken as part of the policy, as if the same had been actually set out therein, and that if any statement in the declaration is untrue, or if any of a number of specified things happen, that then the policy shall be void, and all the premiums actually paid shall be forfeited. The question then is, what is the fair sense of the word "untrue"? I agree with Mr. Mellish that the meaning of the word "untrue," if taken by itself in a policy of this kind, is *incorrect*, and not necessarily "wilfully false." The question is, whether the word "untrue" in this proviso is to be taken in that sense or not. Looking at the declaration itself, and the terms used in it, and remembering one or two rules of construction, as well as what I have already said of the general rule that the premium is not forfeited simply by breach of warranty or misrepresentation, the question comes to this, whether the premium is forfeited as well as the policy avoided. Now we must remember one or two ordinary rules of construction; and although I agree that those general rules are often cited by both sides, so that they do not much assist us, yet they furnish us with the general principles upon which to go. One of those rules, and which is agreed upon to be a sensible rule, is, that in cases of instruments the language used by one of the parties is to be construed in the sense in which it might reasonably be construed by the other side. If there is any ambiguous phrase to be construed, the construction of law is *verba chartarum fortius accipiuntur contra proferentem*. In construing such a document, you must bear in mind that they are the words of the party who used them, and if he uses ambiguous words with the hope and intention that the other side may take them to mean one thing, and then, when the question is to be settled by a Court, that Court may say they meant something else, the rule *verba chartarum*, &c. applies; and they ought to be construed in that sense in which, looking fairly at them, a prudent person would have understood the words to mean. Now, we find in the declaration these words: "I do hereby declare that the above-written particulars are correct and true throughout"; that would undoubtedly, in the ordinary sense, be a representation, that they were true; and then it goes on, "And I do hereby declare that this proposal and declaration shall be the basis of the contract between me and the company." Now, if the declaration had stopped there, that would have been a warranty. But it goes on to say, "And if it shall hereafter appear that any fraudulent concealment or designedly untrue statement be contained therein, then all," &c. A person who was ignorant of Insurance Law would not read that as meaning to point out that if the statement was "untrue," the policy should be null and void; but that it should be null and void if the statement was fraudulently and designedly untrue, and not otherwise. I cannot help thinking that the ordinary rule of construction also applies—*expressio unius est exclusio alterius*. The express mention of the design and fraud might fairly lead a lawyer to say that the effect of this was, that it waived and parted with the implied tacit agreement that the misrepresentation should vitiate the policy, and confined it to the vitiating of the policy in that one case. Therefore, looking at the rule *verba chartarum*, &c., and taking the whole together, it may fairly be said that upon this declaration the policy should be cut down and construed to mean that if the statement should be fraudulently and designedly untrue, then the policy should be void and the premiums forfeited, but not otherwise. If once it is made out that the declaration is to be read in that way, I agree with my Brother Crompton that when it is brought into the policy, the word "untrue" is to be read in the same sense as in the declaration. I cannot concur in Mr. Mellish's ingenious argument, that as the declaration was signed first of all, it became a promise, and that the policy may have a totally different meaning from that which the declaration bore, and may add to it. In my opinion, that would be giving the company, in one sense, a right to cheat people. I have no doubt that the true test is *verba chartarum*, &c., that the proviso and the declaration must be construed together, and that then the effect of the declaration is to cut down the word "untrue" *primâ facie*, and to limit it to being wilfully false.

MELLOR, J.—I confess that at one time my opinion was in conformity with the view suggested by Mr. Mellish, that the policy might be vitiated by a mere untruth, although it would require a designedly false statement to bring about a forfeiture of the premiums that had been paid. But upon full consideration, I have come to the same conclusion at which my Lord and my Brothers have arrived, that the true construction of this policy is in favour of the plaintiffs. The proviso that avoids the policy does so upon three events happening. First, it avoids it if there be any statement that is untrue; secondly, if it was effected through any wilful misrepresentation or concealment; thirdly, if the assured should go beyond the limits of Europe, and so on. Each one of these is made to forfeit the premiums and avoid the policy; and when we come to read the policy and declaration together, and see what it is that is necessary to explain the meaning of the word "untrue," we find that the same proviso which provides for the avoidance of such policy, on the happening of these matters, itself refers to the incorporation of the declaration as the basis of the contract. Reading the declaration in the way in which my Brother Blackburn has read it, I agree with him that it would be calculated to lead any one into the belief that the untrue statement which is to vitiate the policy and forfeit the premiums, must be a designedly untrue statement, for I find at the conclusion of the declaration the same consequences are made to follow. I agree with my Lord and my Brothers. *Judgment for the plaintiffs.*

GAMBLING ACT.

See "Interest," "Debt," "Creditor," "Assignment."

53.—An **HEIR** has *no* insurable interest arising from his expectations.

This was put very strongly by Lord Eldon in *Lucena* v. *Craufurd*, 2 Bosanquet and Puller's new cases 269, a case in the House of Lords on appeal from the K. B. and Exchequer Chambers in 1806, on a marine policy. "Suppose a case of the heir-at-law of a man who has an estate worth £20,000 a-year, who is 90 years of age, upon his death-bed, intestate, and incapable from incurable lunacy, of making a will. There is no man who will deny that such an heir-at-law has a moral certainty of succeeding to the estate, yet the law will not allow that he has any interest or anything more than a mere expectation."

HUSBAND. [See ART. 55, below.]

54.—By the Income-Tax Act (16 & 17 Vict. c. 34, s. 54) it is provided, that "any person who shall have made insurance on his life *or on the life of his wife* . . . . . shall be entitled to deduct the amount of the annual premium . . . . . from any profits or gains in respect of which he shall be liable to be assessed." From this it has been argued that a husband may assure the life of his wife:—but this is doubtful, except in the case where he has a direct pecuniary interest in the life. It is, however, a common practice for a husband to assure the joint lives of himself and his wife.

INCOME TAX.

55.—The following is the clause of the Income Tax Act, giving exemption in respect of Premiums paid for Life Assurance, referred to in the preceding Article:—

Persons who have made Insurance or contracted for a Deferred Annuity on the lives of themselves or Wives to be allowed an Abatement of Duty in respect of the annual Premiums made.

"LIV. Any person who shall have made Insurance on his Life or on the Life of his Wife, or shall have contracted for any Deferred Annuity on his own Life or on the Life of his Wife, in or with any Insurance Company which shall become registered under any Act to be passed in the present Session of Parliament for that Purpose, and which shall comply with the Requirements of such Act, and any Person who shall under any Act of Parliament be liable to the payment of an annual Sum, or to have an annual Sum deducted from his Salary or Stipend, in order to secure a Deferred Annuity to his Widow or a Provision to his Children after his Death, shall be entitled to deduct the Amount of the annual Premium paid by him for such Insurance or Contract, or the annual Sum paid by him or deducted from his Salary or Stipend as aforesaid, from any Profits or Gains in respect of which he shall be liable to be assessed under either of the Schedules (D.) or (E.) of this Act, or to have any Assessment which may be made upon him under either of the said Schedules reduced or abated by the Deduction of the Amount of the said annual Premium from the Amount of the Profits or Gains on which such Assessment has been made; or if such Person shall be assessed to Duties under any of the Schedules contained in this Act, and shall have paid such Assessment, or shall have paid or been charged with any of the said Duties by Deduction or otherwise, such Person, on Claim made to the Commissioners for Special Purposes, and on Production to them of the Receipt for such annual Payment, and on Proof of the Facts to the Satisfaction of the said Commissioners, shall be entitled to have repaid to him such Proportion of the said Duties paid by such Person as the Amount of the said annual Premium bears to the whole Amount of his Profits and Gains on which he shall be chargeable under all or any of the Schedules of this Act: Provided always, that no such Abatement, Allowance, or Repayment as aforesaid shall be made in respect of any such annual Premium beyond One Sixth Part of the whole Amount of the Profits and Gains of such Person so chargeable as aforesaid, nor shall any such Deduction or Abatement entitle any such Person to claim total Exemption or any Relief from Duty on the Ground of his Profits and Gains being thereby reduced below One Hundred or One Hundred and Fifty Pounds, as the Case may be."

By a later Act of the same Session (16 & 17 Vict. c. 91), the Insurance Companies referred to above, are defined to be all existing in 1844, or registered under the Act of that year; and the benefit of the section has since, by the 18 & 19 Vict. c. 35, been extended to Friendly Societies.

INDISPUTABILITY.

56.—If a Company advertise in their Prospectus that they grant Indisputable Policies, and then plead against a Claim that plaintiff has made untrue statements, (fraud not being alleged) it is a good replication to allege the statements in the Propectus.

In *Wood* v. *Dwarris* (11 Exch. 493), 1856. Chief Baron Pollock said:—"If upon a proposal and agreement for a life insurance, the Policy be drawn up by the Assurance Office on a form which differs from the agreement and varies the rights of the party assured, a Court of Equity will interfere and deal with the case upon the footing of the agreement, and not of the Policy." (*Collett* v. *Morrison*, 9 Hare 162, see "Assignment" and "Trustee.") B. Alderson:—"It was holding out to the world that they would require no proof of the truth of the matters stated in the proposal, but would only dispute the claim on the ground of fraud."

B. Martin:—"No doubt it would be competent for the Company to grant a Policy upon terms which excluded the Prospectus, and if it were so, the defendants would be justified in resisting this action."

See also *Harris* v. *Queen Insurance* (Jany. 1864), not yet reported.

57.—We have elsewhere discussed the question of Indisputability at length.* We there recommend that Policies of a modified "indisputable" form should be granted, to become unchallengeable after they have been five years in existence, or earlier by payment of an extra premium. Of course, no Policy, however framed, can be sustained, if fraudulently obtained; but it is a valuable improvement in Life Assurance practice for the Offices to renounce their vexatious power of resisting the payment on the ground of error without fraud. If it causes them to be more vigilant in enquiry, so much the better. (See *ante* p. 37, and FRAUD.)

INFANCY.

58.—A Creditor may assure the life of an infant Debtor, provided the debt be not an illegal one.

In *Dwyer* v. *Eady* (1788); Park on Insurance, 914; Blayney on Life Assurance, 65, J. Buller nonsuited the plaintiff, on the ground that part of the consideration of the debt was for a gaming transaction.

59.—A Policy of Assurance may be effected for the benefit and in the name of an infant upon his own life or the life of another; but if he enters into a contract for a Policy, or a contract, a term of which is the issuing of a Policy, it will (as regards any liability that may arise thereon) be subject to the ordinary rule affecting the contracts of infants, namely, that they are void or voidable at the election of the infant on attaining the age of 21 years, or according as the Court may pronounce them to be to their prejudice or benefit. Should however the infant decline to complete or affirm the contract, it would seem that he cannot maintain an action to recover the premium paid by him, or any deposit in respect of it.

Per Gibbs, C.J., in *Holmes* v. *Blogg* (1818), 2 Moore 552. Per Lord Kenyon (1800) in *Wilson* v. *Kearse*, Peake additional Cases 196. Bunyon on Assurance, p. 298. Beaumont on Insurance, p. 22.

60.—When the Policy is on the life of the infant, the person to receive the amount assured, upon his death, will be his administrator. If the Policy is upon the life of another, the amount assured, as in the case of a simple legacy, cannot be paid during the minority of the infant, without the sanction of a Court of Equity.

Lee v. *Brown*, 4. Ves. 362.

* [Scratchley's *Treatise on Life Assurance and Friendly Societies*, 10th Ed. p. 32, and Part I. herein.]

61.—The Court will sometimes exercise a large discretion in dealing with the interest of an infant in property of this description.

In *exparte Hays* (1840), 3 De G. & S. 485, a Policy on the life of the grandfather had been settled, and in a petition of the infant and her father, stating that the father was in indigent circumstances and about to emigrate, an order was made by V. C Knight Bruce for the surrender of a Bonus on the Policy, and for its application to the maintenance of the infant, the father renouncing all interest in the Policy.

* INTEREST IN A LIFE.

62.—No insurance may be made on an event in which the party assured hath no interest; and in all policies the name of the party interested must be inserted, and nothing more can be recovered than the amount of his interest.

These are the provisions of the "Gambling Act," 14 Geo. 3, c. 48, the preamble to which sets forth that "it hath been found by experience, that the making insurances on lives, or other events wherein the Assured shall have no interest, hath introduced a mischievous kind of gaming."

See numerous instances of the speculative policies, which this Act was intended to prevent, in Francis's *Annals of Life Assurance*. As to the Law previously to the passing of this Act, see a curious case of *Fitzgerald* v. *Pole*, in "Magen's Essay on Insurances," 1755, vol. 1, p 533.

63.—Every one has an interest in his own life and every part of it, and may therefore assure for any part without showing that he has any particular interest in that period.

This was the decision of Lord Abinger (1835) in *Wainewright* v. *Bland*, 1 Moody and Robinson 481, an action brought against the Imperial Office by the notorious Wainewright, to recover the amount of a policy effected for a short term on the life of Miss Helen Abercrombie. "If a party has an interest in his own life, surely he must be interested in every part of it."

64.—A Policy effected without interest in the life, belongs to the Office which issued it.

This is the decision of the Lords Justices (1858) in *Freme* v. *Brade*, De Gex and Jones, 590, 27 L. J. Ch. 697, an action in respect to a Policy in the Medical and Invalid Office, on the life of R. P. H. Joddrell.

Previous to the passing of the Gambling Act, the law did not prohibit a wager on life, which might be in the form of a Policy. See the curious case of the *Earl of March* v. *Pigot*, 5 Burrow, 2803, in the year 1771.

65.—The Gambling Act does not extend to Ireland,† but Wagering Policies in that Kingdom have since been prohibited by 8 & 9 Vict. c. 109, s. 18.

British Commercial Insurance v. *Magee* (1834), Cooke and Alcock 182. In this case a Policy effected without interest, was supported on the ground that the

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* See "Creditor," "Debtor," "Husband," "Heir," "Devisee," "Assignment."

† [A Government Bill is now (May, 1866) passing through Parliament to extend the provisions of the Gambling Act to Ireland, from and after the 1st November, 1866.]

Statute, by prohibiting the practice in Great Britain, recognised it elsewhere: contrary to the doctrine at that time held by the English Courts, that Life Assurance was a contract of indemnity. See Hildyard on Marine Insurances, 1845, p. 34.

66.—If Assurances be effected with two (or more) Offices, and the full amount of the Interest in the Life be received from one of them, nothing can be recovered from the other.

Hebden v. *West*, 1863, 3 Best & Smith 579, 32 L. J. 85 Q. B., 11 W. R. 423.

67.—The Gambling Act has little real influence. The law always fails in attempts to put down contracts between man and man; and though this Act is still in force, yet it is in that respect analagous to the Usury Laws, the Bubble Act, and Sir John Barnard's Act against time bargains on the Stock Exchange, which have been all repealed by recent more enlightened legislation. The law, as it stands, only helps unscrupulous and bankrupt offices to evade just claims; for if an office of good standing were to avail itself of the Act, it would lose the confidence of the public, and suffer accordingly in its business.

See evidence given on that point (1831) in *Barber* v. *Morris*, 1 Moo. & R. 62, where a clerk from the Office, who were the defendants in *Godsall* v. *Boldero*, stated, that after that trial the business of the Office had suffered, and they had therefore changed their course of proceeding; and that if they were to make the enquiries supposed, they might as well shut their doors. (See Art. 35.)

LAPSED POLICIES.

See "REVIVAL."

LOAN.

68.—If an Assurance Company lend money upon the condition that the Borrower shall, as collateral security, assure his life in their own office to a greater amount than is necessary to secure the repayment of the Loan, the Policy is not a gaming or wagering one.

Per Lord Abinger (1844) in *Downs* v. *Green*, an action in the Court of Exchequer, 12 Mee. & W. 481.

69.—If a Borrower covenant to pay the Premiums under a Policy and afterwards become bankrupt, his liability to pay the Premiums does not create a Debt between him and the Lender, proveable in bankruptcy.

Per Lord Denman (1843) in *Toppin* v. *Field*, 4 Q. B. 386. See also *Atwood* v. *Partridge* (1827), 4 Bingham 209.

Where a trader covenanted by an ante-nuptial settlement, to pay the premiums on certain assigned Policies, or, if he failed to do so, to repay to the trustees the amount that they should pay in respect thereof, it was held that the trustees could not prove for the amount required by the Offices, as a commutation of

the premiums to accrue during the remainder of the life of the bankrupt. *In re Whitmore* (1843), 3 De Gex & S. 565: *In re John Foster* (1850), 9 C. B. 422. 14 Jur. 814 C. B. These decisions were upon the 56th section of 6 Geo. 4, c. 16, re-enacted in the Bankruptcy Consolidation Act, 1849, and permitting the proof of contingent debts. See *Bunyon on Life Assurance*, p. 194.

MATERIALITY.

70.—A Policy of ordinary form will be vitiated, if any material misstatement or omission is made in effecting it. What circumstances are material is a question for a jury. Whether the Assured himself thought them to be material or not does not matter.

Lindenau v. *Desborough*, 8 Barnewell and Cresswell 586, 3 Carrington and Payne 353, was an action on a Policy on the life of the Duke of Saxe Gotha. At the trial before Lord Tenterden, evidence was produced that the state of the Duke's organs of speech and mental faculties, was such as should have been disclosed to the Assurers, whereupon Lord Tenterden expressed an opinion that the case was at an end, and said that he should direct the jury to find for the defendant, if they thought the plaintiff had failed to communicate to the Assurers any material circumstance within his knowledge. A rule for a new trial on the ground of misdirection was refused. J. Bayley:—"The contrary doctrine would lead to frequent suppression of information, and it would often be extremely difficult to show, that the party neglecting to give the information thought it material." J. Littledale:—"The question on such a policy is not whether a certain individual thought a particular fact material, but whether it was in truth material, and of this the jury are by law constituted the judges." Among the questions put by the Office to the physicians was, "Are there any other circumstances within your knowledge which the directors ought to be acquainted with?" This question calls for a statement of everything that anyone could think material. But see *Fowkes* v. *Manchester and London*, "FRAUD."

71.—An omission in the description of the party of his occupation and business address, is not necessarily material.

See the remarks of C. J. Cockburn and J. Hill in *Perrins* v. *Marine and General Assurance*, "SUPPRESSIO VERI." See also as to the general principle of Materiality the case of *Carter* v. *Boehm* (1766), 3 Burrow 1905, and the remarks upon it in Smith's Leading Cases (5th Edition), 472. It was an insurance granted to the Governor of Fort Marlborough against the capture of the post, without any warranty. Lord Mansfield held that the concealment there relied on was immaterial, as the Assurers had, before the execution of the policy, obtained a knowledge of the facts by other means. See also Mr. Serjeant Marshall's *Treatise on Marine Insurances*, 4th Edition, 1861, by Sergeant (now Mr. Justice) Shee.

72.—The concealment of a fact, that would lessen the risk, is not material.

As in the case of a marine insurance, where the facts that the ship had been surveyed and a favourable report made, were not mentioned to the Assurers. Per Lord Ellenborough (1804) in *Haywood* v. *Rogers*, 4 East 590.

73.—The following are the facts, the materiality of which has been held to be a proper question for a jury.

1.—Insanity, when within the knowledge of the Assured, and Intemperance. *Craig* v. *Fenn* (1841), 1 Carrington and Marshman, 43; and *Lindenau* v. *Desborough, ante*, p. 64, Art. 70.
2.—Opium eating. *Sir W. Forbes* v. *Edinburgh Life Assurance Company* (1832), 10 Shaw, Dunlop & Bell 451; 7 Faculty Decisions 351; the insurance was on the life of the Earl of Mar. Jones on Annuities, 1165.
3.—Serious illness six months before proposal, and the name of the medical attendant therein (notwithstanding recovery). *Morrison* v. *Muspratt*, 4 Bing. 60.
4.—Profligacy of character in an unmarried woman. *Edwards* v. *Barrow*, Ellis on Insurance, 116.
5.—Imprisonment for Debt. *Huguenin* v. *Rayley*, 6 Taunton 186, &c.

MEDICAL ATTENDANT.

74.—The name of the *usual* Medical Attendant must be given in answer to a question to that effect.

Huckman v. *Fernie*, 3 Mee. and W. 505, was an action tried in the Court of Exchequer in 1838. Lord Abinger said:—"The terms and nature of the question prove it was designed to extract from the person, who is the medical attendant best able to give an account of her constitution at the time, and if she has no usual medical attendant in the precise grammatical sense of the question, it appears to me she is bound to mention who is the medical attendant who could give that information."

75.—If during an intervening period a different medical man has attended the party, that should also be stated.

Morrison v. *Muspratt*, 1827, 4 Bing. 60, 12 Moore 231. Although, as J. Burrough remarked, "advantage should not be taken of the omission of trifling circumstances."

76.—Where reference was made to a person who had not been the ordinary adviser, and not to the person actually attending, although the latter was only a quack doctor, the Policy was vitiated.

Everett v. *Desborough* (1829), 5 Bing. 503.

MISREPRESENTATION.

77.—A statement is not the less untrue because the party making it is not apprised of its untruth. False statements made without the Assured knowing that they are false, will therefore vitiate a Policy containing a "Warranty."

Lord Lyndhurst in *Duckett* v. *Williams*, 2 Crompton and Meeson 348, an action in the Court of Exchequer in 1834. See "FRAUD."

78.—Verbal misrepresentations will vitiate a Policy, even though the Policy refers to a written statement.

Wainewright v. *Bland* (see "Interest"). Helen Abercrombie stated at the Office, in answer to questions from the Actuary, that she had not previously effected other assurances, which was false.

79.—In order to amount to a misrepresentation, it is not necessary that the statements should be literally false; it is sufficient if they should be so made as intentionally to mislead.

In *Moens* v. *Heyworth*, 10 M. & W. 147. B. Alderson observed: "If a person makes a representation or takes an oath of that which is true, if he intend that the party to whom the representation is made should not believe it to be true, that is a false representation; and so he who takes an oath in one sense, knowing it to administered to him in another, takes it falsely. This may be illustrated by an anecdote of a very eminent ambassador, Sir Henry Wotton, who, when he was asked what advice he could give to a young diplomatist going to a foreign court, said, I have found it best always to tell the truth, as they never believe anything an ambassador says; so you are sure to take them in. Now, Sir Henry Wotton meant that he should tell a lie. This, no doubt, was only said as a witticism, but it illustrates my meaning."

MURDER (See "Policy.")

MUTUAL OFFICES (See Debt.)

PARENT.

80.—A Parent has no insurable interest in the life of his child, for the word interest in the statute means pecuniary interest.

Lord Tenterden and JJ. Littledale and Parke in *Halford* v. *Kymer*, 10 B & C 724, an action tried in 1830. On the other hand, it was held by Mr. Justice Bayley, that a father may insure his son's life for the son's benefit.

POLICY.

81.—The name of the person interested must be inserted as such. By the Gambling Act, wagering Policies are void:—but *all* Policies on the life of another must set forth who is really interested.

Hodson v. *Observer Life* (1857), 8 E. & B. 40, 26 L. J. Q. B. 303. *Shilling* v. *Accidental Death Assurance* (1857), 2 Hurlstone & Norman 42; 1, F. & F. 116, Erle J.

82.—It is not unfrequently an express condition of a Policy, that It shall be void if any untrue statements are made concerning the life:—in those cases, any statement irreconcileable with fact, whether material or immaterial, will avoid the Policy.

Cazenove v. *British Equitable Office*, 28 L. J. 259, Common Pleas; 29 L. J. 160, on error, in the Exchequer Chamber (see "Fraud.") This appears from a

multitude of cases, of which *Everett* v. *Desborough*, 5 Bingham 503, 3 Moore & Payne 190, may be taken as an example. It was an action against the A. Office tried in 1829, and the misstatement, successfully relied upon by the company, was in answer to the question as to the usual medical attendant. Mr. Justice Park (Author of the standard Work on Assurance already so frequently quoted) said:—"In all actions on life assurance I am quite clear every regard ought to be paid to the assurer, because in general it is a provision for a family, or it is a provision for a *bonâ fide* debt, as I have no doubt it was in this case." J. Burrough:—"It is now difficult to frame a declaration on a policy in life assurance, on which the Assured can succeed, as the directors of several companies seek to avail themselves of every possible objection." This remark is not in accordance with the practice of offices of late years. They know their own interest better.

83.—If a person effects with an Assurance Company an insurance upon his life, and afterwards commits a capital felony, is tried, convicted and finally executed, the parties, representing and claiming under him, cannot recover the sum assured on the Policy so effected.

Amicable Society v. *Bolland*, on a policy on the life of Fauntleroy, who was hanged in 1824 for forgery, 4 Bligh, N. S., 194, House of Lords.

84.—If the Policy contains a clause rendering it void in the case of suicide, suicide though under temporary insanity vitiates it. See "DEATH."

This was the decision of the majority of the Court of Exchequer Chamber in *Clift* v. *Schwabe*, 3 C. B. 437, 2 Car. & Kirwan 134, an appeal from the Common Pleas in 1846. B. Rolfe:—"Every act of self-destruction is in common language described by the word suicide, provided it be the intentional act of a party knowing the probable consequences of what he is about." J. Patteson:—"The words 'commit suicide,' mean only 'killed himself.'" B. Alderson:—"The words in question include all cases of voluntary self-destruction." B. Parke:—"If the intestate voluntarily killed himself, it is immaterial whether he was then sane or not." On the other hand, J. Wightman held, that "by the word suicide, as used in this policy, a criminal killing of himself, such as could only be committed by a responsible moral agent is meant;" and C. B. Pollock, that "if death is the effect of disease, whether affecting the senses or the reason, the assurance office is liable under the policy:"—but their opinions were overruled by that of the majority. See also *Stormont* v. *Waterloo Assurance*, 1 F. & F. 22 Channell B.

85.—If a man insures his life and becomes *felo de se*, his executors cannot recover on the Policy: a stipulation that upon such an event the Policy should give a right of action would be void. But where a man insures his own life, there is no illegality in a stipulation that if the Policy should afterwards be assigned *bonâ fide* for a valuable consideration, or a lien upon it should afterwards be acquired *bonâ fide* for valuable consideration, it might be enforced for the benefit of others, whatever may be the means by which death is caused.

Lord Campbell in *Moore* v. *Woolsey*, 4 E. & B 243, 24 L. J. Q. B. 40.

86.—Where the Policy provides that it shall not be void in case of

suicide, if it shall have been "legally assigned," a deposit of the Policy, as security for advances made for the benefit of the assured, is an assignment within the meaning of the clause.

At law a policy cannot at present be assigned to any one but the Crown. See chap. 1, p. 17. The Master of the Rolls (1858), in *Dufaur* v. *Professional Assurance*, 25 Beav. 599, 27 L. J. Ch. 817. See *Cook v. Black* (1842), 1 Hare, 390.

86 *bis*.—Where a Policy provides that it shall be void in case of suicide, "except to the extent of any interest acquired therein by actual assignment for valuable consideration," and it has been mortgaged along with other property, the Company has no equity against the property comprised in the mortgage, and does not stand to the Assured in the position of surety to principal.

Wood, V.C., in *Solicitors and General Assurance* v. *Lamb*, 1864, 1 Hemming ar Miller, 716; 33 L. J. 426 Ch.; 10 L. T. N.S. 160; 10 Jur., N.S. 579; 12 W. 667. Affirmed on appeal, 10 Jur., N.S., 739; 10 L. T., N.S., 702.

It would appear, though this has not been expressly decided, that the Company would be bound to pay to the mortgagee, even if the representatives of the Assured had paid off the debt,—and in that case the mortgagee would have to hand over the amount to the estate of the mortgagor.

If the expression used in the Policy is that the assignees shall be "indemnified" to the extent of their interest, then the Company would only be bound to pay them the actual amount lost.

Cook v. *Black*, 1 Hare, 390, (1842).

87.—If the assured enter into a contract with third parties to keep up the Policy, and afterwards commit self-destruction, so that the Policy is avoided; that has been held not to be such a breach of the contract as would entitled the parties to recover damages against his estate.

Dormay v. *Borrodaile*, 5 C. B. 380, 1848.

88.—If a Policy has become void, and the sum assured has notwithstanding been paid in error, an action to recover it back may be brought in the names of the persons who signed the Policy on behalf of the Office.

Lefevre v. *Boyle*, 3 B. and Adol. 877, an action by the Promoter Office in 1832. If the Company is one established under the Companies' Act 1862, or otherwise incorporated, the action may be brought in its name.

89.—As to the effect of the days of grace usually allowed for payment of the premiums, see

Want v. *Blunt*, 12 East 183; *Tarleton* v. *Staniforth*, 5 T. R. 695, Hughes 508.

90.—If a Company revive a Policy that has lapsed they may waive the conditions of it. See "Revival."

Busteed v. *West of England Office*, 9 Ir. Ch. Rep. 553, and *Supple* v. *Cann*, 9 Ir. Com. Law R. 1 (1858), arose on a Policy on the life of the Knight of Kerry. The Policy contained conditions as to revival in case of lapse, and the Company, after a lapse, continued to receive premiums, without insisting on those conditions. Held that this revived the Policy.

91.—The Company cannot avail themselves, as against the assured, of any technical defect in the issue of a Policy (such as the Common Seal not having been applied with due formality), if it appear on the face of it to be in proper form.

Charles v. *National Guardian Assurance* (1857), 29 L. T. 246 Q. B.
Prince of Wales Assurance v. *Harding, Athenæum Assurance* (1858), E. B. & E. 183, 31 L. T. 149 Q. B.
Athenæum Assurance exparte *Eagle Assurance* (1858), 4 Kay & Johnson 549, 27 L. J. 829 Ch.

92.—Where the life assured had been murdered to obtain the benefit of the Policy, it was declared void.

Per the M. R. in *Prince of Wales Assurance* v. *Palmer* (1858, the Rugeley Murders), 25 Beav. 605.

93.—As to extra premiums on proceeding beyond the limits allowed by the Policy, see

Notman v. *Anchor Assurance*, 4 C. B. N. S. 476, 27 L. J. 275 C. P., a case where the Company having given licence to proceed and reside in Honduras for one year, the license was held to bind them, although the life did not proceed there till three years afterwards.

Fowler v. *Scottish Equitable Assurance*, 28 L. J. 225 Chan., 32 L. T. 119 Ch., was a case where a Policy having been granted at a special rate for a foreign risk, contrary to the intentions of the Proposer, it was, after the death had happened, declared by V. C. Stuart to be not binding on either side, as made by mistake, and ordered that the Policy be given up and the premiums repaid.

See also *Reis* v. *Scottish Equitable Assurance* (1857), 2 H. & N. 19, 3 Jur. N. S. 417 Ex.

94.—The remedy of the Assured, under the usual form of Policies, is against the Company, and not against individual Shareholders or Directors.

Athenæum Assurance exparte *Prince of Wales Assurance* (1858), 27 L. J. 795 Ch. confirmed 5 Jur. (N. S.) 558 Ch., on appeal.

Athenæum and Prince of Wales exparte *Durham* (1858), 4 Kay & Johnson 517. *Hallett* v. *Dowdall*, 18 Q. B. 2; *Halket* v. *Merchant Traders*, 13 Q. B. 960.

PREMIUMS.

95.—If a Policy, that has been forfeited or become void, provides that the Premiums shall be forfeited, then the Company cannot be made to return them even if the assured be innocent of fraud.

Duckett v. *Williams*, 2 Crompton and Meeson 348. This would seem to be the case even upon an application by the Company to a Court of Equity to set aside the Policy. See the decision of Lord Langdale in *Barker* v. *Walters* (1844), 8 Beav. 92. See "FRAUD."

96.—In the absence of an express stipulation for forfeiture of the premiums on avoidance of the Policy, if application were made by the Company to a Court of Equity to set it aside, the Court would order the premiums to be returned, for a Plaintiff in Equity must do Equity. In general, if the Policy says nothing on this head, and the Assured has not been guilty of fraud, he is entitled to receive back the premiums paid from the time when the risk ceased.

Per Lord Mansfield (1761) in *Stevenson* v. *Snow*, 3 Burrow 1237; 1 Blackstone's Rep. 315; Parker on the Laws of Shipping and Insurance, 1775, p. 415.

Anderson v. *Thornton*, 8 Exch. 425, is a case where a false statement was made without fraud and the policy avoided, but the premiums were recovered.

97.—Where a premium has been paid, but from any cause whatever the risk has not been run, the premium must be returned. If any portion of risk, though only for twenty-four hours, has been incurred, there will be no return.

Per Lord Mansfield in *Tyrie* v. *Fletcher* (1777), Cowper 666; and in *Bermon* v. *Woodbridge* (1781), Douglas 781.

98.—If the Assured, or his Agent, has been guilty of fraud, the Court will not assist him by ordering the premiums to be returned.

Chapman v. *Fraser* (33 Geo. 3), Park on Insurance 456.

"Where a Policy is void through the fraud of the Assured, or from being made in contravention of some positive law (as in the case of a Wagering Policy), the Assured is not allowed to reclaim the Premium: and in instances of this latter description, the mutuality of the fault makes no difference; for here the maxim is held to apply that *in pari delicto, potior est conditio possidentis*."—Steph. Comm. 5th Ed. ii. 138. Park on Ins. 372, 377.

99.—As to Quarterly Premiums.

Sheridan v. *Phœnix Life*, Ellis B & Ellis 156, 28 L. J. Q. B. 94, 31 L. J. 91 Q. B. (House of Lords) was an action brought by the Times Company in 1858. Lord Campbell in delivering the judgment of the Q. B., said, "The policy was strangely framed, and policies in this extraordinary form must be exceedingly rare." He construed it as a policy from quarter to quarter, leaving the assured at liberty to drop it at the end of any quarter, and not imposing any continuing liability on the Insurance Company, unless the quarterly payment is made at the end of the quarter. This judgment was reversed in the Exchequer Chamber, where C. B. Pollock said, "As far as reasonably and properly we can, we ought to construe the contract, the language and terms of which proceed entirely from the Office, so as not to defeat the contract or make it void, or work what is in the nature of a forfeiture without express words, which require us to do so." The judgment of the Exchequer Chamber was again reversed in the House of Lords.

RE-ASSURANCE.

100.—Where one Company, A, having accepted an Assurance of large amount on a life, re-assures a portion of the risk with another Company, B, on the understanding that they will retain a stated portion themselves, and yet afterwards assure the whole remainder of risk with a third Company, C, the Policy granted by B is void.

In the case of *Traill* v. *Baring*, 1864, 3 L. J., 521 Chanc., 12 W. R. 334, V. C. Stuart granted to the Reliance Society (the plaintiffs) a decree that a policy for £1000 issued by them to the P. Association (the defendants) was void, and must be delivered up to be cancelled. The defendants had agreed with the Reliance that they would keep £1000 of the risk themselves, but had, five days afterwards, without informing the Reliance, re-assured it again with the Victoria Office, who had since paid the claim.

REVIVAL.

101.—After a Policy has lapsed, if the Directors revive it without insisting upon proof of the state of health of the life assured, the revival is not effectual unless the life is in being at the time, though both parties may be ignorant of his death.

Pritchard v. *Merchants' and Tradesmen's Assurance*, 3 C. B. (N.S.) 622, 27 L. J. C. P. 169, an action by the United Mutual Office in 1858, on a policy on the life of R. P. H. Joddrell, which had been renewed by the defendants after his death. See also *Simpson* v. *Accidental Death Office* (1857) 2 C. B. N. S. 257.

102.—A demand of the Premium by the Company after the Policy has lapsed, does not amount to a revival, unless it be complied with.

In *Edge* v. *Duke* (1849), 18 L. J. Ch. 183, the Court of Equity declined to deprive the Office of the benefit of the forfeiture, although at the time of the death of the Assured actions had been brought to recover the premium unpaid, holding that if there had been a revival, it was neutralized by the refusal to pay.

But if the Company continue to receive Premiums after the Policy has lapsed, they thereby revive the Policy.—*Supple* v. *Cann*, 9 Ir. C. L. R. 1, *ante* p. 69.

103.—Application is frequently made to the Office, where the title to a Policy has become involved, to allow it to lapse, and grant a new one on the same terms. Such a new Policy, if granted to any one of the parties interested in the old one, might, as Mr. Bunyon suggests, by an application of the doctrine of the Court as to the trust of renewed leasehold estates, be liable to be considered subject to the like claims and equities as the former Policy.

Fitzgibbon v. *Scanlan* (1813), 1 Dow 261. *Tanner* v. *Elworthy* (1841), 4 Beav. 487.

SEAL.

104.—If a Company plead to an action against them, that the Policy was procured by fraudulent misrepresentation, they cannot also plead a denial that the Policy was under seal.

Weld v. *Forster* (1826), 12 Moore 61.

SUPPRESSIO VERI.

105.—The non-statement of an altogether immaterial circumstance in answer to a question, does not amount to a suppressio veri, if the question be truly answered: as where the Assurer described himself as "Esquire," and gave his private residence as his address, not mentioning that he carried on a trade at another place.

Perrins v. *Marine and General Travellers' Office* (1859) 29 L. J. Q. B. 17.

TRUSTEE.

106.—A Trustee has an insurable interest in respect of the legal right or interest vested in him, though he may not be beneficially interested.

Tidswell v. *Ankerstein* (32 Geo. 3), Peake N. P. 204.

107.—The *cestuique* trust (that is, the person for whose benefit the Trust was created,) has an insurable interest in respect of his equitable right or interest.

Exparte *Yallop*, 15 Ves. 60. Exparte *Houghton*, 17 Ves. 251.

108.—A Trustee of a Policy will not be allowed to apply the monies received under it to his own use.

Exparte *Andrews*, 1 Maddock 573. *Armitage* v. *Winterbottom*, 1 M. & G. 130, *Holland* v. *Smith*, 6 Esp. 11.

109.—If an insurance be effected in the name of a Trustee without interest, by a person having a sufficient interest, the name of such person must be inserted in the Policy: as where a Policy is effected for

the benefit of a married woman, and the premiums paid out of her separate income, her name as *cestuique* trust must be inserted in it as well as that of her trustee.

Collett v. *Morrison*, 9 Hare 162, (see Assignment). In this case the proposal had been duly made, but in the Policy the name of the *cestuique* trust was wrongfully omitted by the Company, and V. C. Turner interfered, and dealt with the case on the footing of the Proposal, and not of the Policy.

110.—The grantee of a Policy may voluntarily declare himself a Trustee of the monies assured, and the transaction will be binding upon him and his representatives.

James v. *Bydder*, 4 Beav. 600.

111.—Where a Policy is vested in Trustees upon a trust for such persons as A shall appoint, A may appoint any person as beneficiary without consideration.

Collinson v. *Patrick*, 2 Keen 123. See Sugden on Powers, Arnould on Marine Insurance, and Bunyon on Life Assurance.

112.—Under the Trustee Relief Act, if disputes arise as to the parties entitled to the payment of the Policy after the death has occurred, the Assurance Company may pay the money into Court.

Re Hall, 5 L. T. (N.S.) 395, Chanc.

Re The United Kingdom Life Insurance Company, 11 Jur. (N.S.) 424, Chanc.

WARRANTY (See p. 37, and FRAUD.)

113.—If a statement is made the basis of the contract by being inserted in the Policy as such, it amounts to a warranty; and if not literally true, whether material or not, the Policy will be vitiated. The *uberrima fides* is to be observed with respect to Life Assurances as well as Marine Assurances. If not made the basis of the contract, any statement is matter of representation merely; and if substantially true, though not literally so, or if immaterial, the Policy will not be avoided. A mere representation must be not only false but fraudulent to defeat the Policy. No particular form of words is necessary for the purpose of creating a warranty.

Wheelton v. *Hardisty*, 8 E. & B. 232, 26 L. J. Q. B. 265, 27 L. J. Q. B. 241, Ex. Ch.

Ross v. *Bradshaw*, 1 Blackstone's Rep. 312, a case occurring as long ago as the 1st year of Geo. 3, arose on a policy on the life of Sir James Ross, in which he was "warranted in good health at the time of making the policy." Lord Mansfield held, that in such a policy the Assured took it upon him to prove that the *cestuy que vie* was in a general good state of health, and the non-statement of any particular infirmity would not vitiate the policy, if such infirmity was not dangerous to life at the time of the Assurance.

Chattock v. *Shaw*, 1 Moody & Rob. 498, (1835.) Lord Abinger held that a warranty that "the Assured has not been afflicted with nor is subject to fits," means that he was not habitually or constitutionally liable to fits.

See also Lord Eldon's remarks in the House of Lords in the *Newcastle Fire Office* v. *Macmorran* (1815), 3 Dow 225, and Scratchley's Treatise on Life Assurance and Friendly Societies, 10th Edition, p. 35.

WIFE.

114.—A wife has an insurable interest in the life of her husband.

Lord Kenyon in *Reed* v. *Royal Exchange Assurance*, 36 Geo. 3, Peake's Additional Cases, 70.

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APPENDIX

ON

MORAL AND MATHEMATICAL EXPECTATION IN PROBABILITIES.

Art. 1. In this Section we propose to illustrate, as briefly as

Errata in Mathematical Appendices to Vol. II.

IN APPENDIX ON PROBABILITIES.

Page 6, formula (5), *for* $(F+f_3)^{s}$ *read* $(F+f_3)^{p_3}$

Page 13, line 6, *for* $(F'-9{,}200)^{\frac{1}{5}}$ *read* $(F'-9{,}200)^{\frac{1}{20}}$

Page 14, line 4, *for* $(g+l)$ *read* $(g+l)^{n}$

IN APPENDIX ON INVESTIGATIONS INTO THE AFFAIRS OF A COMPANY.

Page 22, formula (11), *for* π_{x+n} *read* π_{x+n}

Page 30, formula (4), *for* $a'_{x_{\overline{1}|g}}$ *read* $a'_{x_{\overline{1}|gn}}$

Page 31, formula (8), *for* p^{x} *read* p_{x}

* [For more extensive discussion of the theory of probabilities than would come within the range of this Treatise, we refer our readers to the works of Laplace and Poisson, which have been rendered into a most elegant form by our late lamented friend Mr. Galloway. Although it is in the works of Laplace and Poisson that the higher and more abstruse part of the theory of probabilities must be studied, yet a very clear explanation of the principles of the science, together with many interesting remarks on the uses and application of the theory, is to be found in the valuable little work of Lacroix, *Traité Elémentaire du Calcul des Probabilités:* Paris, 1833.]

3.—Thus, for instance, the value of a single Annuity, offered for sale, on a life aged 60, is of larger mathematical value, according to mortality tables, whatever be the rate of interest assumed, than, morally speaking, it would be worth the while of a purchaser to give for it, as in making his purchase he would have to guard against the chance of premature decease, which, although in a large number of cases likely to be compensated by Retarded deaths of other lives, would be fatal to the profit of his investment when occurring on one single purchase.*

4.—In like manner, in valuations of Leases on lives, for the purpose of substituting a *Term certain* for the Life Lease, a common error is made, of treating the *mathematical* value of the term certain as exactly equivalent to the value shown by the mortality table for the annuity on the life or lives involved, whereas considerations of *moral expectation* enter, which depend upon the number of similar cases the parties concerned are interested in.

Of Mathematical Expectation.

5.—This is estimated as follows:—

Suppose P and Q to be engaged in play. Let p and q be the respective probabilities of P's and Q's winning a game, upon the issue of which an amount, S, is staked: then the mathematical expectation of P is $p.S$, and that of Q is $q.S$. Now, if P and Q were to purchase these expectations, the respective amounts they ought to pay for them, or, in other words, to stake on the issue of the game, in order that they may play on equal terms, must be proportional to the expectations or probabilities of winning the game. If therefore P_1 be the sum staked by P, and Q_1 the sum staked by Q, we have

$$p.S : q.S :: P_1 : Q_1$$

or

$$p : q :: P_1 : Q_1$$

and consequently $p.Q_1 = q.P_1$.

---

* [Hence arises the necessity, to Isolated purchasers, of actually charging for the Insurance in some office of the life upon which the Annuity depends, instead of making the net provision, π_x, for a sinking fund, in the formula for the value of an annuity due, a_x, or $\frac{1}{d+\pi_x}$. This is effected by putting in the denominator, the office premium, p_x, for π_x, thus producing a value considerably less than a_x.]

Now, suppose the amount played for = the stakes, or

$$P_1 + Q_1 = S$$

then, since P expects to gain Q_1, the probability of winning which is p, we have, for the mathematical value of P's expectation of gain,

$$p \,.\, Q_1$$

and in a similar manner we find the value of Q's expectation of gain,

$$q \,.\, P_1.$$

Hence it is evident that when the stakes of each are in proportion to their respective probabilities of winning, the mathematical expectations of each player are equal; so that, subsequently to the deposit of the stakes, and prior to the decision of the event, the players may, without advantage or otherwise on either side, exchange places. Also, since the sum which the one must gain is equal to that which the other must lose, the product of $q \,.\, P_1$, which is Q's expectation of gain, may be regarded as P's expectation of loss, or, if taken with a negative sign, as part of P's whole expectation, which then becomes

$$p \,.\, Q_1 - q \,.\, P_1$$

But

$$p \,.\, Q_1 - q \,.\, P_1 = 0$$

consequently, P's condition prior to the decision of the event is in nowise affected, speaking *mathematically*, by his having staked on the issue of the game.

6.—This result is correct, for although on a single trial the player P must either lose P_1 or gain Q_1, that is, either augment or diminish his fortune, yet if the play be undertaken on terms of mathematical equality and continue to a sufficient number of games, the probability, that the sum gained or lost *in the long run* shall be practically nothing, or that the sums gained and lost shall be very nearly equal, amounts to a certainty. (See Article 32, at end.)

7.—It is however practically impossible to suppose an indefinite repetition of the hazard; whence it appears that an individual or society of individuals must be guided by other considerations than the mere mathematical value of the expectation in their speculations.

For example: a Society of small resources should not risk £1,000 on a single or small number of speculations for the chance of gaining £10, although the chance might be 100 to 1 in its favour; but the same remark would not apply to the case of risking £10 for the expectation of gaining £1000, even if the chances were 100 to 1 against the occurrence of the event. In both cases, however, the expectation would be purchased at its real mathematical value.

8.—Again, a person whose sole fortune consisted of a lottery-ticket, which has an equal chance of either turning up a prize of £1,000 or a blank, is, mathematically speaking, by the above formula, in an equally advantageous position as he who is in possession of £500; yet no man of ordinary prudence, if offered his choice of the two stakes, would hesitate as to which he ought to prefer. Common sense will prevent a man from risking a large sum, the loss of which would be attended with great privations or inconvenience, even when, mathematically speaking, the chances are considerably in his favour. It is evident, therefore, that two persons whose fortunes are very unequal, cannot engage in play on equal terms, notwithstanding that the chances in favour of each in respect of a single game may be precisely the same. For the one who has the larger fortune can repeat the hazard so often that the probability that his loss will not amount to any given sum will nearly be equal to a certainty, whereas the other, who cannot continue the play in the case of a loss, runs a considerable risk of being ruined. Hence it is obvious that in measuring the value of an expectation, the *number* of cases has to be considered, apart from the abstract theory of probability. Consequently, an individual dealing with contingent events must to a certain extent be guided by considerations of *relative* advantage. In other words, such contingent events will have to him a *moral* expectation value, different from the *mathematical* expectation value.

9.—By way of illustration: *A small Society cannot risk the same sums as a large Society in speculations, unless the former can make a* much higher rate of profit *than the latter.* Suppose a Society, possessing a capital of £100,000, considers it prudent to risk £10,000 in a certain speculation, then another Company, whose capital is £10,000, should only risk £1,000 in the same. To illustrate this by an extreme case: Suppose one Society can command pounds where another can command only pence; what should the second do to preserve its relation unaltered to the first? It is clear that if it engage in precisely the same kind of transactions, it must risk only one penny where the first risks £1. In this case, both, if either, would only become bankrupt together, and both pay the same percentage of their liabilities; and if both gain, the profit would be the same percentage of their invested capital: the only difference between them, mathematically speaking, would be the name of the coin they deal in. Change the word "pound" into "penny," and the books of the first Society would become those of the second.

10.—There is, in addition, another circumstance which always is and must be in favour of the larger Society, viz. *the Expenses of Management;* since the outlay in a small Society cannot be proportionably less than the similar outlay in a larger; that is to say, by way of example, a Company with an Income of £20,000 can, in general, be managed for less than double the expense attending another with an income of £10,000.

11.—Moreover, a small Society cannot command the same range of choice as a large one for temporary investment, on account of the smallness of its resources; consequently it must select the best out of a more limited number than the larger Society can command. It is a well-known fact in the commercial world that large businesses can exist with lower profits than smaller ones, inasmuch as the Fluctuation fund must be a larger percentage of the whole in the latter case than in the former. The increase of large farms, large manufactories, etc., confirms this abundantly. A large Society and a small one, trading at the same rate of profits, may, in the words of Mr. de Morgan, be compared to a line-of-battle ship and a small boat in a rough sea: in which case, the first only oscillates, but the second is upset.

Of Moral Expectation.

12.—*Moral* considerations affecting pecuniary contingencies may be accurately measured by formulæ depending on the hypothesis first advanced by the celebrated Bernouilli,* viz. *That the relative value of any infinitely small sum, dx, is inversely proportionate to the Fortune, x, of the individual who expects to receive it, but directly proportionate to its absolute value.*

Then, the moral advantage arising from the contingency of receiving dx would be represented by $k\frac{dx}{x}$, and the relative or *moral value* of the fortune, which is susceptible of contingent augmentation, (its *absolute* value being x,) becomes

$$=\int k\frac{dx}{x}$$

* [Vol. 5, Petersburg Commentaries.

The theory of *moral* Expectation had its origin in a problem proposed by Nicholas Bernouilli to Montmort, which, on account of its having given rise to considerable discussion in the 'Petersburg Mémoires,' has been usually called the *Petersburg Problem.*]

$$= k \,.\, \log x + h \quad . \quad . \quad . \quad (1)$$

k and h being constants to be determined from the nature of the question.

Thus, if $x = F$, the original Fortune, the integration would be taken from $x = F$ to $x = x$, and the above moral value can be put under the form

$$k \,.\, \log \frac{x}{F} \quad . \quad . \quad . \quad . \quad . \quad (2)$$

13.—To illustrate the application of this formula for moral values, let $f_1, f_2, f_3, \ldots$ be sums to be received on the happening of certain contingent events, the probabilities of which are $p_1, p_2, p_3, \ldots$ and let it be supposed that one or other of the events will necessarily happen; then

$$p_1 + p_2 + p_3 + \ldots = 1 \quad . \quad . \quad . \quad (3)$$

and the *moral* or aggregate relative fortune of the individual, which is, by (1),* represented by

$$k \,.\, \log x + h$$

will also

$$\begin{aligned} &= p_1 \{k \,.\, \log (F + f_1) + h\} \\ &+ p_2 \{k \,.\, \log (F + f_2) + h\} \\ &+ p_3 \{k \,.\, \log (F + f_3) + h\} + \text{etc.} \quad . \quad . \quad (4) \end{aligned}$$

Hence $\quad x = (F + f_1)^{p_1} \,.\, (F + f_2)^{p_2} \,.\, (F + f_3)^{p_3} \,.\, \text{etc.} \quad . \quad (5)$

and $x - F$ is the sum, which if it were certain to be received, would procure to the individual the same relative advantage as his contingent expectations.

14.—From eq. (5), we gather that, *even when the mathematical chances are equal,* there is a *moral disadvantage* in speculation.

To illustrate this: Let A, whose fortune is £1,000, make a bet with another, B, on an event, which presents an equal mathematical chance of either gaining,—the loser to pay, say £500, to the winner. What is the *moral* value of A's fortune after he has made the bet, and before the result is known?

Here $\quad F = £1{,}000, \quad f_1 = £500, \quad f_2 = -£500,$

and $\quad p_1 = p_2 = \frac{1}{2}$

$\therefore \quad x = \{1{,}000 + 500\}^{\frac{1}{2}} \,.\, \{1{,}000 - 500\}^{\frac{1}{2}}$

$\quad = 500 \sqrt{3} = £866$ nearly,

consequently, the position of A is worse by £134 than it was before

* [Laplace calls x the *fortune physique*, and $k \,.\, \log x + h$ the *fortune morale*. See his *Théorie Analytique des Probabilités*, chap. 10, art. 41, p. 432.]

he made the bet: therefore, the moral disadvantage is equivalent to this sum, though the terms of the play, according to the mathematical theory, are equal.

If the bet be smaller in proportion to the fortune, say £100, then the moral value of A's £1,000, after having made an even bet involving a gain or loss of £100, is

$$= \{1{,}100 \times 900\}^{\frac{1}{2}}$$
$$= 300\sqrt{11} = £995 \text{ nearly,}$$

which shows, in this case, a moral disadvantage of only £5, very much less than a fifth of that in the previous example, scarcely $\frac{1}{25}$th.

15.—As another illustration, take the case of two persons, A and B, whose fortunes are the same, £1,000 each, making a bet that £500 should be paid by A if he loses, and £50 to A if B loses, the odds being supposed and taken in the ratio of the bets, *i.e.* 10 to 1; then the moral value of A's and B's fortunes after the bet is made, but before the result is known, would be:—

For A's case,

(where $p_1 = \frac{10}{11}$ $\quad F = 1{,}000 \quad f_1 = 50 \quad f_2 = -500$)

$$x = (F+f_1)^{p_1} \,.\, (F+f_2)^{1-p_1}$$
$$= (1{,}050)^{\frac{10}{11}} \,.\, (500)^{\frac{1}{11}} = £981.$$

For B's case,

$$x = (1{,}500)^{\frac{1}{11}} \,.\, (950)^{\frac{10}{11}} = £990,$$

which shows that although, according to Art. 5, the mathematical expectations are equal when the stakes are in exact proportion to the chances, yet the *moral* expectations are no longer equal, when the bet is made and the result unknown.

16.—Conversely, if the problem in (14) be to find the value, p_1, of the *mathematical* chance, such that the *moral* value of A's fortune may remain nearly intact, or only affected to a trifling extent, say μ per pound, by his having made a bet. Then

$$(F+f_1)^{p_1} \,.\, (F-f_2)^{1-p_1} = F(1-\mu)$$
$$\therefore \quad \frac{(F+f_1)^{p_1}}{(F-f_2)^{p_1}} \,.\, (F-f_2) = F(1-\mu)$$
$$p_1\{\log(F+f_1) - \log(F-f_2)\} = \log(1-\mu) + \log F - \log(F-f_2)$$
$$\therefore \quad p_1 = \frac{\log(1-\mu) + \log F - \log(F-f_2)}{\log(F+f_1) - \log(F-f_2)} \quad . \quad (6)$$

Example: Let the fortune be £1,000, the sum risked £500, on

the chance of making a gain of £500; to find p_1, so that the *moral* value may differ from the mathematical by 1 per cent.

Here $$p_1 = \frac{\log 1{\cdot}98}{\log 3} = {\cdot}622$$

or the chances should be about 6 to 4 or 3 to 2 in his favour.

17.—*All risks, if only mathematically balanced, are disadvantageous.*—In order to prove this principle, suppose an individual, whose fortune is F, stakes a sum, R, with a chance, p, of winning. The stake to be won, by the hypothesis, is

$$\therefore \qquad = \frac{R(1-p)}{p} \qquad \text{(See Art. 5.)}$$

and the value of the expectation by eq. (5) is

$$= (F + \frac{R(1-p)}{p})^p . (F-R)^{1-p} \quad . \quad . \quad . \quad (7)$$

If this be less than F, the bet has produced a moral disadvantage, and his pecuniary condition is worse than it was before he entered upon the speculation. Now the above result divided by F

$$= \frac{\{F.p. + R(1-p)\}^p . \{p.(F-R)\}^{1-p}}{F.p}$$

Putting this into logarithms, we have it

$$= p.\log\left\{F.p + R\overline{1-p}\right\} + \overline{1-p}.\log\left\{p.\overline{F-R}\right\} - \log p.F$$

$$= (1-p)\, p\int_0^R \left\{\frac{1}{p.F + R(1-p)} - \frac{1}{p(F-R)}\right\} dR.$$

in which the coefficient of dR is evidently negative for all positive values of R, the integral is therefore negative, whence the Expectation itself is negative.

18.—To determine what should be the contingent gain, G, that a person with a fortune, F, may without moral disadvantage, risk a sum, R, on a speculation of which the chance of gain is p; in other words, what proportion G should bear to R.

Here $$(F+G)^p . (F-R)^{1-p} = F$$

or $$G = \{F^{\frac{1}{p}} \div (F-R)^{\frac{1-p}{p}}\} - F \quad . \quad . \quad . \quad (8)$$

19.—Let $p = \frac{1}{2}$, and put $R = \frac{F}{m}$,

$$\therefore \quad G = \frac{F.R}{F-R}$$

or in another form $\frac{1}{R} - \frac{1}{G} = \frac{1}{F}$. . . . . (9)

Again, $G = \frac{m}{m-1} . R$ . . . . . (10)

20.—If $m = 2$ or $R = \frac{F}{2}$

$G = 2\,R = F$

whence we learn, *That a person should not stake half his fortune upon an even chance, unless the contingent gain be such as will double his fortune, or give him cent. per cent.*

21.—Let $R = F$, then $G = \infty$, or the sum to be gained by a speculation must be infinitely large to make it worth while to risk the whole of one's fortune upon an even chance.

22.—If, in formula (4), the quantities f_1, f_2, f_3, etc., be very small in comparison with F, the expression for the moral expectation, $x - F$, becomes very nearly

$$= p_1 f_1 + p_2 f_2 + p_3 f_3 \ldots \quad . \quad . \quad (11)$$

which is the *mathematical expectation;*—that is to say, the *Moral and Mathematical expectations nearly coincide,* when the contingent benefits to be obtained from the speculation are very small in comparison with the fortune in possession before the risk is incurred.

23.—A corresponding result to the above arises when the risks, to which a given Capital is exposed, are so divided that the number of ventures may be large. Hence it is better for an Insurance Society that its funds and capital should be exposed to a number of small* risks, independent of each other, than to take the liability of a limited number of large policies, although the *mathematical* probability of loss be in both cases precisely the same. For example, the mathematical value of the risk on one policy of £10,000 on a life aged 30 is the same as the aggregate mathematical values of ten policies of £1,000 each on lives of the same age; but the moral values of the expectations of the two kinds of risks are different.

As another illustration, take the case of a merchant with a capital of £4,000, besides goods of the value of £8,000, which must be

* [See the formulæ and remarks on the subject of Loan Risks in Building Societies, in note, Div. II., p. 58, of Treatise on the subject.]

transported by sea: supposing $\frac{1}{10}$th to be the probability that the vessel will be lost in the voyage, what is the *moral expectation* of the merchant,—first in the case of the goods being transported in a single vessel; and secondly, in the case of one-half being embarked in one vessel, and the other half in another.

I. If the goods be embarked in *one* ship, the merchant's absolute fortune will, in the event of the safe arrival of the ship, become £12,000: and, in the event of her being lost, £4,000. The probability of the first of these events is $\frac{9}{10}$, and that of the second, $\frac{1}{10}$; consequently, the moral value of his absolute fortune becomes, from formula (5),

$$X = (12{,}000)^{\frac{9}{10}} . (4{,}000)^{\frac{1}{10}} = £10{,}751 \text{ nearly,}$$

which is £449 less than the mathematical value by the probability ($\frac{9}{10}$) of the gain.

II. In the second case, supposing the merchandise to be embarked in two ships, we have three compound events to consider, viz.:—

1°. Both vessels may arrive in safety, the chance of which is

$$\tfrac{9}{10} \times \tfrac{9}{10} = \tfrac{81}{100}$$

2°. One of the ships may be lost, and the other arrive in safety: this may happen in two ways;

∴ the chance is $\quad 2(\frac{9}{10} \times \frac{1}{10}) = \frac{18}{100}$.

3°. Both ships may be lost; the chance of which is

$$\tfrac{1}{10} \times \tfrac{1}{10} = \tfrac{1}{100}.$$

If the first of these events take place, the Capital of the merchant will become

$$£4{,}000 + £8{,}000 = £12{,}000.$$

If the second happen, it will be

$$£4{,}000 + £4{,}000 = £8{,}000.$$

And if the third happen, it will be only £4,000.

Hence, substituting these numbers in the same formula,

$$X = (12{,}000)^{\frac{81}{100}} \times (8{,}000)^{\frac{18}{100}} \times (4{,}000)^{\frac{1}{100}}$$
$$= £11{,}033 \text{ nearly,}$$

which is £167 only below the mathematical expectation, and £282 in excess of the result on the hypothesis of the merchandise being risked on one ship; and it may be easily shown in the same way, that the *moral* expectation is increased by an increase in the number of ships among which the risk is divided, and approaches its limit £7,200, which is the value of the mathematical expectation, or

$$\tfrac{9}{10} \times £8{,}000.$$

24.—It may, also, be shown that, whatever may be the risk of ruinous fluctuation to which a Society may be exposed in embarking a certain amount of Capital in each of a certain number of similar speculations, it is halved by employing one-fourth as much Capital in each of four times as many speculations, and so on. Mercantile men are perfectly aware of the general truth of this principle, but they very often imagine that they *halve* the risk by *doubling* the number of ventures; whereas they would have to be four times as many.

25.—*The theory of Moral Expectation enables us to assign the circumstances, in which it is advantageous or otherwise for Societies to grant, and for individuals to pay for policies insuring Property, dependent on particular hazards, such as Invalid Lives, Untried Risks, particular kinds and seasons of voyages, etc.* For this, we have three principal questions to consider :—

a. *What amount of premium, Y, the Insurer can pay to the Society without disadvantage.*

b. *What ratio his fortune should bear to the value of the sum speculated, in order that it may prove advantageous to insure at a given premium.*

c. *What Capital a Society ought to possess in order that it may, with probable advantage to itself and safety to the Insurer, accept a given risk.*

(a.) Let R be the sum which an Insurer has at risk, dependent upon an event, the probability of the favourable happening of which is p, and F his capital independently of R. Then the mathematical value of the Assurer's absolute fortune is

$$(F + R) - (1 - p) R = F + p \,.\, R$$

if he insures, paying for the policy its net value, $(1 - p) R$; and *the moral value* $x = (F + R)^p \,.\, F^{1-p}$

if he does not insure.

Consequently, according as

$$F + p \,.\, R > \text{ or } < (F + R)^p \,.\, F^{1-p}$$

it will be advantageous or otherwise to insure. To examine this, we must take the Logarithm of these expressions. The first

$$= \log (F + p \,.\, R) = \int \frac{p \,.\, d R}{F + p \,.\, R}$$

The second $= p \,.\, \log (F + R) + (1 - p) \log F$

$$= \int \frac{p \,.\, d R}{F + R}$$

which is less than

$$\int \frac{p \,.\, dR}{F + p \,.\, R}$$

since p is a proper fraction. Therefore, in general, Assurance is attended with advantage.

26.—In the above, let

$$Y' = (F + p \,.\, R) - (F + R)^p \,.\, F^{1-p} \,. \qquad . \quad (12)$$

This represents the sum the Insurer could afford to pay the Assurance Society in addition to the mathematical value of the risk, without moral disadvantage. Hence, his relative fortune will be increased or diminished by insuring, according as he pays less or more than $\{(1 - p) R + Y'\}$. In practice, the premiums paid, Y, may be considered to fall between the limits of $(\overline{1 - p} \,.\, R + Y')$ and $(\overline{1 - p} \,.\, R)$. Hence, notwithstanding that the Assurer pays more than the mathematical value of the risk, he gains a moral advantage by the transaction.

27.—(b.) The amount of Capital, F, the Insurer should possess, so that it may be morally a matter of indifference to him whether he insures or not at a premium, Y, is the value of F determined from the equation

$$F + R - Y = (F + R)^p \,.\, F^{1-p}$$

For example: Let R, the sum at risk on the event, = £10,000, Y = £800, and $p = \frac{19}{20}$; then we have

$$F + 10{,}000 - 800 = (F + 10{,}000)^{\frac{19}{20}} \,.\, F^{\frac{1}{20}}$$

or

$$(F + 10{,}000)^{\frac{19}{20}} \,.\, F^{\frac{1}{20}} - F = 9{,}200$$

from which we find the value of F, by approximation, = £5,043. Therefore, to neglect insuring for a policy of £10,000 would not prove advantageous, unless his other capital amounts to more than £5,043, even though the premium charged exceeds the mathematical value of the risk by £300.

28.—(c.) The Capital, F', the Society granting the policy ought to possess, may be found in the same way. Its capital, after accepting the risk of the sum R, for the premium Y, becomes (F' + Y) should the vessel arrive in safety, and

$$(F' - R + Y)$$

in the event of her being lost; therefore the moral expectation becomes

$$x = (F' + Y)^p \,.\, (F'' - R + Y)^{1-p}$$

which must = the Society's original Capital, F', in order that neither advantage nor disadvantage may accrue in undertaking the risk. Therefore, supposing the numerical values of R, Y, p, and $1 - p$ to remain as before, the equation becomes

$$F' = (F' + 800)^{\frac{15}{16}} \times (F'' - 9{,}200)^{\frac{1}{16}}$$

from which we find, by approximation,

$$F'' = 14{,}243 \text{ nearly};$$

or there would be a moral disadvantage in a Society undertaking the risk of insuring a cargo with £10,000 for a premium of £800, unless its Capital amounts to £14,243, and should a less premium be demanded, the Capital should be still greater.

If $Y =$ £600, which still exceeds the mathematical value of the risk, F'' becomes £29,878.

29.—From the preceding we learn that a Company, with a large capital, may not only with safety engage in speculations, which might prove ruinous to another whose resources are more limited, but also with certainty derive a profit from them at a lower premium.

The smaller Company would consequently require a larger margin on its premiums than the richer Company, to guard against contingencies of loss in its speculations, setting aside all question of the expenses and fixed profit on capital required, these being usually included and provided for in the margin added to the premiums.*

30.—It follows that *an Office, that has but few cases of any particular kind of risk, must charge a larger margin over the theoretical premium than where it has a sufficient average; otherwise, the moral value of its assets is less, after a Policy is granted and risk commenced, than before.* Also, that *an Office of small resources should not attempt risks of an unfavourable character, such as diseased lives, etc.*

31.—*If a Society enter into a given number of successive or simultaneously independent transactions of a contingent character, the combination, which, of all others, is* most likely *to happen, is that in which the number of losses is to the number of gains most nearly as the probability of losing any one to the probability of gaining it.*

* [See Laplace and Traité Elémentaire de Lacroix, p. 132.]

Suppose there are g ways of gaining and l ways of losing, and that the number of speculations in question is n, depending on n events of the same sort. In the developement of

$$(g+l)^n = g^n + ng^{n-1}l + \frac{n(n-1)}{1.2}g^{n-2}l^2 + \ldots.$$

we see, in the coefficients, the number of ways in which *all, all but one*, etc., may succeed; and if we divide both sides by the whole possible number of cases, $(g+l)^n$, and let $\frac{g}{g+l} = p, \frac{l}{g+l} = q$, we have

$$p^n + n.p^{n-1}q + \frac{n(n-1)}{1.2}p^{n-2}q^2 + \ldots. = 1$$

the terms of which express the probabilities that *all, all but one*, etc., will succeed. The ratios of these successive terms to those which precede are

$$n.\frac{q}{p}, \quad \frac{n-1}{2}.\frac{q}{p}, \quad \frac{n-2}{3}.\frac{q}{p}, \text{ etc.}$$

The $$\frac{\overline{r+1}\text{th term}}{r\text{th term}} = \frac{n-r+1}{r}.\frac{q}{p} = T_r \text{ (say).}$$

Let the rth term be the *greatest;* that is, let T_r be *less* than unity, and T_{r-1} *greater* than unity, or

$$(n-r+1)q < rp \quad \Big| \quad (n-\overline{r-1}+1)q > (r-1)p$$
$$\therefore \quad (n+1)q < r \quad \Big| \quad \therefore \quad (n+1)q > (r-1)$$

But the rth term expresses the probability of losing $(r-1)$ and gaining $(n-r+1)$ of the speculations; consequently, in n separate events, against each of which the probability is q, the most probable of all losses is the whole number next below $(n+1)q$, which is *more likely* than any other *given* loss, though not more likely than any out of the other losses.

The preceding relations give

$$\frac{r-1}{n-r+1} > \frac{nq-p}{(n+1)p} < \frac{(n+1)q}{np-q}$$

Where n is a large number, the two fractions just found are very near to $\frac{q}{p}$, which establishes the theorem.

32.—Although the *most likely* combination in question is not to be necessarily counted upon, yet the greater the number of speculations entered into, the smaller will be the percentage of fluctuations to be reasonably looked for. Consequently, if a Society enter into 1,000 speculations, against each of which the chance is 9 : 1, then

it may anticipate the loss of 900 and the gain of 100, and the speculations must not be entered into unless upon terms that will make the 100 pay the risk of the whole 1,000: or, if each successful speculation would bring £10, the sum risked by the Society must be less than the probability of gain, £1, in each of the 1000, in order to allow for the possible deviation from the *most likely* combination.

33.—The following principles are also important, not only in considering questions similar to the preceding, but in the measurement of the probability of events happening in a particular manner among the lives assured in a Company, where the probabilities depend on the experience it has had during previous periods, such as the nature of diseases attending certain occupations and certain districts, or the mortality among invalid lives in successive quinquennial periods.

1°. *The Probability, p, that a particular kind of event which has occurred n times already, will occur again is*

$$= \frac{n+1}{n+2} \quad . \quad . \quad . \quad . \quad (13)$$

When n is very large, $p = 1$; that is to say, after a very large number of observations the probability of the event occurring as before approaches certainty.

Example :—

Thus, if an event, depending on unknown causes, and which can happen only in one of two ways, has been observed to happen once, the probability is two-thirds, or the odds are two to one in favour of its happening in the same way at the next occurrence.

2°. *The probability that the event will occur n' times the same way again is*

$$\frac{n+1}{n+n'+1} \quad . \quad . \quad . \quad . \quad (14)$$

Example :—

Thus, if there are five events, which must turn out in one of two ways, and the first two events have occurred in one way, it is three to one that the next will occur in like manner, and an even probability that all will occur the same. If, however, three events have occurred one way, then the chances are two to one that the remaining two will do so likewise.

3°. *The Probability that there exists a cause which necessitates the*

reproduction of an event that has been observed several times together, increases more rapidly than the probability of the next happening of the event.

For the probability that the event has not been produced by accident, but that it has been facilitated by causes, is

$$= \frac{2^{\overline{n+1}} - 1}{2^{\overline{n+1}}}$$

which increases more rapidly with n than (13).

For further details on these points, see Cournot 'Exposition de la Théorie des Chances et des Probabilités,' and Quetelet's 'Probabilities.'

APPENDIX

ON THE

VALUATION OF POST OBITS

AND

CONTINGENT REVERSIONS OR LEGACIES.

With some simple new Formulæ and Tables.

◆

By Life Annuities.

Art. 1.—Frequent complaints are made of the excessive amounts that are charged by way of *Post Obits* on property, in consideration of the payment of a sum in present money or of Life Annuities granted to the lives entitled to the property in Reversion. These complaints are particularly frequent (and generally with justice) when the parties concerned are private individuals, not conversant with the principles of calculation involved, or when erroneous formulæ are used by Actuaries who have no experience in dealing with such questions. We have consequently thought that the annexed Tables might be useful in enabling Solicitors and others to ascertain the fair amount for a Post Obit, or charge to be made on *Contingent Reversionary Legacies* or property, in the most general case of two lives, where a present annuity is *proposed* to be granted to *one life*, in consideration of a *Post Obit*, contingent on its surviving another, and provision is made for the annual cost of an Assurance in case of previous death. Where more than two lives are involved, the Tables would be too extensive for convenient publication.

2.—The subject has become more especially interesting of late,

*

through the recent actions of *T.* v. *the H. and P. of W. Assurance Societies* in the Court of Queen's Bench, where the Plaintiff claimed on an Assurance connected with a Post Obit Bond; and the following explanation of the cases may be serviceable.

3.—The Post Obit Bond in question was given for £14,000, to be paid by a life aged 35, in the event of his surviving another aged 74, in consideration of receiving, during the joint existence of the two lives, an annuity of £330 a year. The Plaintiff, having submitted a case to an Actuary, effected, it is said, assurances for £14,000 on the younger life, at an annual premium of from £4. 15*s.* to £5 per cent., costing him therefore, in the aggregate, nearly £700 a year.

4.—Various pleas were raised by the Companies resisting payment, one of which was, that the sum assured exceeded greatly the *legal assurable* interest which the Plaintiff had in the life. This one plea is supported by an examination of the case, submitted to the Actuary referred to, which was as follows:—

> "*What amount should a Post Obit be for, to be paid by a gentleman aged* 35, *if he outlives his father, aged* 74?
>
> "*The consideration to be an annual payment of* £330, *together with the necessary* insurance *on the* younger *life, which can be done at* 5 per cent., *he* not *being a* very good *one; the old life to be calculated to live* ten *years.*"

5.—The Actuary's opinion was as follows:—

> "Assuming *that the older life will live* ten *years, and that the younger will* survive *the elder, I am of opinion that the amount of the Post Obit, to cover the necessary insurance, should not be less than* £12,832."

6.—The above answer being assumed as correct, the Plaintiff would not have been far out in effecting his Assurances for £14,000, and in requiring a Post Obit for that amount.

But, in the preceding case, two arbitrary suppositions were laid down as conditions of the question:—

1st. *That the older life would live ten years* certain.
2nd. *That the younger life would certainly survive him;*

and such assumptions are constantly being made, to the injury of property mortgaged for Post Obits.

7.—On these assumptions the calculations would stand thus (treating the Annuities, for simplicity, as Annuities *due*, and interest at five per cent.) :—

Let A = *Accumulation of an Annuity of £1, paid at the beginning of the year, for ten years certain, at 5 per cent. interest;*

a = *Annuity paid* . . . . . = £330;

O = *Post Obit:*

then $O.(.05)$ = *Annual premium paid by Assurer:*

$$\therefore \{ 330 + O.(.05) \} . A = O$$

$$\therefore O = \frac{A \times 330}{1 - A.(\cdot 05)} \quad . \quad . \quad . \quad . \quad . \quad (1)^*$$

$$= \frac{13\cdot 207 \times 330}{1 - (13\cdot 207 \times \cdot 05)}$$

$$= £12{,}832 \text{ nearly.}$$

The preceding assumptions, however, are erroneous, as, by the Carlisle Law of Mortality, the joint existence of two lives, aged 35 and 74, is only worth, at five per cent., 5·881, or less than six years' purchase.

8.—The case would have been correctly stated thus:—

"*What amount should a Post Obit be for, to be paid by a gentleman, aged* 35, *if he survive his father, aged* 74?

"*The consideration to be an annual payment of £*330, *together with the necessary Insurance on the younger life, the premium for which may be taken at £*5 *per cent. per annum.*"

9.—The correct amount would then be obtainable thus by the ordinary mode of calculation:—

Let a = *Annuity* due, *or payable in advance each year to* x, *during the joint existence of two lives, aged* x, y, *for a Post Obit* O, *to be received if* x *survive* y;

A = *Accumulated amount, with interest (by the end of the year when one has died), of £*1 *a year, payable in advance during the joint existence of* x, y,

* [See Table 9, page 305, *Treatise on Industrial Investment and Emigration*, (taking amount for eleven years, minus £1).]

and $p_{\underset{(1)}{x}\cdot y}$ = *Office Annual Premium to assure £1 in case of x dying before y:*

then $$O = \left(a + O \cdot p_{\underset{(1)}{x}\cdot y}\right) A.$$

$$= \frac{A \cdot a}{1 - A \cdot p_{\underset{(1)}{x}\cdot y}} \quad . \quad . \quad . \quad . \quad . \quad . \quad (2)$$

10.—In the Plaintiff's case, $p_{\underset{(1)}{x}\cdot y}$, the premium, was taken at as high as £5 per cent., and it would have been but fair to have taken a corresponding *reduced expectation* for the joint duration of the two lives, and a *lesser* Post-Obit Bond. But, even assuming their joint duration to be not less than that shown by the Carlisle Tables, and allowing the Plaintiff *£6 per cent. compound interest* for his money, or £1 per cent. per annum more than he professed to charge, by formula (2), O would only equal £4708 (nearly).

11.—To justify a Post Obit of £14,000, an Annuity of £1020 should have been paid to the younger life; and the fact that, while the Annuity paid was only £330, the premiums were £700 a year, should have suggested to the Judge and the Jury that the life was a bad life, and that the assumptions made in the case submitted to the Actuary, viz.—*that the older life would live ten years certain, and that the younger life would survive him,* were erroneous.

12.—The result in Art. 9 might be proved elegantly thus, in a form, it is believed, not to be found in works on Life Contingencies:

Since the amount of the Post Obit is receivable at the death of *either* life,

If $\pi_{x\cdot y}$ = *Annual sinking fund, or Net premium (calculated at the rate of interest the purchaser is to receive), to produce £1 at the death of the* first *of the two lives, x, y;*

and $p_{\underset{(1)}{x}\cdot y}$ = *Annual* Office premium *to Assure £1 in case of x dying before y;*

then $\pi_{x\cdot y} - p_{\underset{(1)}{x}\cdot y}$

is the Annuity which should be paid to life x for a Post Obit of £1.

Hence if £a be the actual Annuity desired to be bought: Then the Post Obit, $O = \dfrac{a}{\pi_{x \cdot y} - p_{\underset{(1)}{x} \cdot y}}$ . . . . . (3)

which is identical with (2), since

$$A = \frac{1}{\pi_{x \cdot y}}.$$

13.—Whence this *Rule* :—

To Calculate the Amount of a Post Obit Bond.

"FROM *the net annual premium,—or sinking fund, at five per cent. Carlisle (or such other rate of interest as may be allowed, and Law of Mortality selected), for the Assurance of* £1, *payable at the death of the first of two lives,*—SUBTRACT *the Office annual premium for* £1 *Assurance against the* younger *life* dying *before the* older,—*And divide the* proposed *Annuity to the younger, by the difference.*" (See the Tables at page 7.)

14.—The rate of interest that should be involved in $\pi_{x \cdot y}$ varies in practice from 5 to 7 per cent., and $\pi_{x \cdot y}$ is easily calculated, with the aid of Joint Life Annuity Tables, from the formula given in our *Treatise on Copyhold Enfranchisement and Freehold Land Societies* (3rd ed., page 4, App.), viz.—

$$\pi_{x \cdot y} = \frac{1}{a_{x \cdot y}} - \frac{1}{a_{\infty}} \quad . \quad . \quad . \quad . \quad . \quad (4)$$

where $a_{x \cdot y}$ is the present value of an *Annuity due* on two lives, and a_{∞} the present value of a perpetuity *due* $= \frac{1}{d}$.

15.—The preceding assumes that the Annuity is payable at the *beginning** of the year, for which, if desired, the equivalent value of the Annuity, payable *half-yearly* or quarterly, can be substituted; but this should *not* be done, unless interest on the Post Obit is

* [It is worthy of attention that, if formulæ relating to Life Contingencies are made to depend, when practicable, on but *one unknown* quantity, and to involve symbols for *annuities due* or payable at the *beginning*, instead of at the *end* of each year, their forms are not only more elegant, but more simple for practical use and remembrance. Such forms are also preferable, as they are then analogous to formulæ for *premiums*, which are customarily payable at the *beginning* of the year; and they can be as easily adapted to cases of *half-yearly* or quarterly Annuities, as formulæ involving Annuities due at the *end* of the

receivable in the event of *delay occurring* in the settlement by the end of the year that one life dies; and although such delay would not in general arise if the *assured life die first*, it might be the case if the *older* die first, and there be delay in the younger coming into the estate. This suggests the propriety of adding some margin for the expenses that may be incurred by the purchaser in the recovery of the amount of his Post Obit.

16.—If, after n years have elasped, the holder of a Post Obit, O, desire to sell it, the value would be

$$= O\,(\pi_{x+n,\,y+n} - \pi_{x.\,y}) \cdot a_{x+n,\,y+n}$$

$$= O\left(1 - \frac{a_{x+n,\,y+n}}{a_{x.\,y}}\right) \quad . \quad . \quad . \quad . \quad . \quad . \quad (5)$$

It may be remarked incidentally, that the coefficient of O is a neat formula for the *value of a Policy*.

---

year. It is an objection to existing works on Life Contingencies, that this analogy is disregarded. By way of illustration (see our Treatise on Copyholds):—

If a_x = Value of Annuity *due* on life x; using the Greek letter Alpha.

a_∞ = Value of a perpetuity due, or an Annuity for ever;

and S_x = Net single premium for Assurance, or present value of £1 receivable at death, of life x:—

$$\therefore d = \frac{i}{1+i} = \frac{1}{a_\infty} \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad (1)$$

$$a_x = a_\infty\,(1 - S_x) \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad (2)$$

$$= \frac{1}{d + \pi_x} \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad (3)$$

A_x = amount of annual premium of £1, by end of year after death of x.

$$= \frac{1}{\pi_x} \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad (4)$$

$$d = \frac{1}{a_x} - \frac{1}{A_x} \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad (5)$$

$$\therefore \Delta\left(\frac{1}{a_x}\right) = \Delta\left(\frac{1}{A_x}\right) \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad (6)$$

$$S_x = 1 - \frac{a_x}{a_\infty} \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad (7)$$

$$= 1 - d\,.\,a_x \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad (8)$$

$$= \frac{\pi_x}{d + \pi_x} \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad (9)$$

$$\pi_x = \frac{d\,.\,S_x}{1 - S_x} \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad (10)$$

$$= \frac{1}{a_x} - \frac{1}{a_\infty} \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad (11)$$

$$= \frac{1}{a_x} - d \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad (12)]$$

Art. 17.

TABLE *for calculating the* Annuity *to be granted in purchase of a* Post-Obit Bond *or* Contingent Reversionary Legacy *of* £100, *payable on the contingency of one life (A)* surviving *another (B).*

(The Annuity is the difference between Columns 1 and 2.)

Ages.		Column 1. Gross Annual Payment to purchase a Post Obit or Contingent Reversionary Legacy of £100, receivable if *A survive B*, inclusive of cost of insuring the chance of *A* dying before *B*, allowing interest at			Column 2. Deduction to be made for rate of insurance of £100, payable should *A die before B.*
A.	B.	5 per cent.	6 per cent.	7 per cent.	Office Annual Premium.
		£. s. d.	£. s. d.	£. s. d.	£. s. d.
20	20	2 0 8	1 18 3	1 16 3	1 8 7
	25	2 3 8	2 1 2	1 19 2	1 7 8
	30	2 7 6	2 5 0	2 2 10	1 6 9
	35	2 11 10	2 9 0	2 6 7	1 5 10
	40	2 17 11	2 14 10	2 12 2	1 4 11
	45	3 4 8	3 1 1	2 18 0	1 4 1
	50	3 15 5	3 11 5	3 7 10	1 3 2
	55	4 13 1	4 9 0	4 5 4	1 2 4
	60	5 17 9	5 13 6	5 9 8	1 1 6
	65	7 4 0	6 19 5	6 15 2	1 0 8
	70	9 8 0	9 3 3	8 19 0	0 19 9
	75	12 9 7	12 4 6	11 19 9	0 19 0
	80	15 13 9	15 8 5	15 3 5	0 18 3
	85	20 13 5	20 8 2	20 3 4	
25	25	2 6 7	2 4 1	2 1 11	1 12 4
	30	2 10 4	2 7 8	2 5 5	1 11 2
	35	2 14 5	2 11 7	2 9 1	1 10 0
	40	3 0 4	2 17 3	2 14 7	1 8 10
	45	3 6 11	3 3 6	3 0 5	1 7 8
	50	3 17 6	3 13 7	3 10 1	1 6 8
	55	4 15 2	4 11 1	4 7 5	1 5 8
	60	5 19 10	5 15 6	5 11 7	1 4 9
	65	7 5 10	7 1 3	6 17 1	1 3 10
	70	9 9 9	9 5 0	9 0 8	1 2 9
	75	12 10 11	12 6 2	12 1 11	1 1 9
	80	15 15 1	15 9 11	15 5 1	1 0 10
	85	20 14 10	20 9 6	20 4 8	

Annuity for the Purchase of a Post-Obit Bond—continued.

Ages.		Column 1. Gross Annual Payment to purchase a Post Obit or Contingent Reversionary Legacy of £100, receivable if *A survive B*, inclusive of cost of insuring the chance of *A* dying before *B*, allowing interest at			Column 2. Deduction to be made for rate of insurance of £100, payable should *A die before B*.
A.	B.	5 per cent.	6 per cent.	7 per cent.	Office Annual Premium.
		£. s. d.	£. s. d.	£. s. d.	£. s. d.
30	30	2 13 10	2 11 1	2 8 10	1 16 9
	35	2 17 8	2 14 10	2 12 5	1 15 3
	40	3 3 5	3 0 4	2 17 9	1 13 10
	45	3 9 9	3 6 4	3 3 3	1 12 4
	50	4 0 0	3 16 4	3 12 10	1 10 11
	55	4 17 8	4 13 9	4 10 1	1 9 8
	60	6 2 3	5 18 1	5 14 5	1 8 7
	65	7 8 4	7 3 10	6 19 9	1 7 7
	70	9 12 5	9 7 8	9 3 4	1 6 8
	75	12 13 6	12 8 11	12 4 8	1 5 8
	80	15 17 9	15 12 7	15 7 11	1 4 9
	85	20 17 7	20 12 3	20 7 5	
35	35	3 1 3	2 18 3	2 15 8	2 1 5
	40	3 6 7	3 3 6	3 0 9	1 19 6
	45	3 12 8	3 9 2	3 6 0	1 17 7
	50	4 2 9	3 18 10	3 15 5	1 15 8
	55	5 0 0	4 16 0	4 12 5	1 13 9
	60	6 4 5	6 0 4	5 16 7	1 12 3
	65	7 10 4	7 5 10	7 1 9	1 11 0
	70	9 14 2	9 9 5	9 5 0	1 9 9
	75	12 15 3	12 10 7	12 6 3	1 8 7
	80	15 19 2	15 14 1	15 9 4	1 7 4
	85	20 18 11	20 13 6	20 8 7	
40	40	3 11 8	3 8 5	3 5 6	2 7 9
	45	3 17 3	3 13 8	3 10 6	2 5 4
	50	4 6 10	4 2 11	3 19 5	2 2 9
	55	5 3 11	4 19 10	4 16 2	2 0 3
	60	6 7 11	6 3 11	6 0 3	1 18 0
	65	7 13 9	7 9 2	7 5 1	1 16 3
	70	9 17 6	9 12 10	9 8 6	1 14 9
	75	12 18 9	12 14 0	12 9 9	1 13 6
	80	16 2 10	15 17 8	15 12 10	1 12 8
	85	21 2 6	20 17 2	20 12 3	

Annuity for the Purchase of a Post-Obit Bond—continued.

Ages.		Column 1. Gross Annual Payment to purchase a Post Obit or Contingent Reversionary Legacy of £100, receivable if *A survive B*, inclusive of cost of insuring the chance of *A* dying before *B*, allowing interest at			Column 2. Deduction to be made for rate of insurance of £100, payable should *A die before B*.
A.	B.	5 per cent.	6 per cent.	7 per cent.	Office Annual Premium.
		£. s. d.	£. s. d.	£. s. d.	£. s. d.
45	45	4 2 1	3 18 4	3 14 11	2 14 4
	50	4 11 0	4 7 0	4 3 5	2 11 0
	55	5 7 5	5 3 2	4 19 4	2 7 6
	60	6 10 10	6 6 8	6 2 10	2 4 1
	65	7 5 11	7 11 3	7 7 1	2 1 0
	70	9 19 2	9 14 5	9 10 0	1 18 3
	75	13 0 0	12 15 4	12 11 0	1 16 0
	80	16 3 10	15 18 8	15 14 0	1 14 5
	85	21 3 9	20 18 4	20 13 3	
50	50	4 19 1	4 14 9	4 10 10	3 4 10
	55	5 14 8	5 10 3	5 6 2	3 0 5
	60	6 17 3	6 12 11	6 8 11	2 15 11
	65	8 1 2	7 16 6	7 12 1	2 11 4
	70	10 3 6	9 18 7	9 14 0	2 6 9
	75	13 3 4	12 18 6	12 14 1	2 2 9
	80	16 6 2	16 0 11	15 16 1	1 19 2
	85	21 5 4	20 19 10	20 14 9	
55	55	6 9 6	6 5 0	6 0 11	4 3 2
	60	7 11 6	7 7 0	7 3 0	3 17 10
	65	8 14 4	8 9 7	8 5 2	3 12 6
	70	10 15 9	10 10 9	10 6 1	3 6 7
	75	13 15 2	13 10 2	13 5 7	3 1 4
	80	16 16 9	16 11 4	16 6 4	2 16 7
	85	21 15 0	21 9 5	21 4 3	
60	60	8 13 0	8 8 7	8 4 7	5 9 2
	65	9 14 10	9 10 1	9 5 10	5 3 0
	70	11 15 8	11 10 8	11 6 1	4 16 6
	75	14 15 0	14 10 1	14 5 7	4 10 7
	80	17 16 3	17 10 10	17 5 10	4 5 7
	85	22 14 8	22 8 11	22 3 7	

Annuity for the Purchase of a Post-Obit Bond—continued.

Ages.		Column 1. Gross Annual Payment to purchase a Post Obit or Contingent Reversionary Legacy of £100, receivable if *A survive B*, inclusive of cost of insuring the chance of *A* dying before *B*, allowing interest at			Column 2. Deduction to be made for rate of insurance of £100, payable should *A die before B*.
A.	B.	5 per cent.	6 per cent.	7 per cent.	Office Annual Premium.
		£. s. d.	£. s. d.	£. s. d.	£. s. d.
65	65	10 14 6	10 9 6	10 5 0	6 14 5
	70	12 13 4	12 8 2	12 3 5	6 5 3
	75	15 11 2	15 6 1	15 1 5	5 16 8
	80	18 10 2	18 4 7	17 19 4	5 8 5
	85	23 7 4	23 1 6	22 16 1	
70	70	14 10 1	14 4 7	13 19 6	8 19 11
	75	17 6 5	17 1 0	16 16 0	8 9 2
	80	20 2 3	19 16 4	19 10 10	7 18 6
	85	24 16 6	24 10 1	24 4 2	
75	75	20 2 11	19 17 6	19 12 6	
	80	22 16 9	22 10 10	22 5 3	
	85	27 9 11	27 3 5	26 17 3	
80	80	25 6 5	25 0 3	24 14 7	
	85	29 15 7	29 8 7	29 1 11	
85	85	33 19 1	33 11 5	33 4 2	

EXAMPLE:—*A Life* 35 *should receive an Annuity due of* £11. 2*s. during his joint existence with another,* 75, *in consideration of a Post Obit of* £100, *supposing that the Purchaser can Assure the Life against* 75 *for a Premium of* £1. 8*s.* 7*d. per cent. per annum, and is allowed to charge* 6 *per cent. interest.*

Hence for a Post Obit of £14,000 *an Annuity of* £1554 *should be given. (See case as stated in Article* 3.)

As to Purchase by Present Values.

Art. 18.—If, instead of an *Annuity*, a *present* cash sum is to be paid to x, for a Post Obit of £1, or in purchase of a Contingent Reversionary Legacy of £1, dependent on x surviving y, the price should be,—

The present net value of £1 receivable at the death of the *first* of the two lives, less the Office *single* premium for the contingent Assurance of x dying before y;

$= (S_{x \cdot y})$ or net *single* premium at the rate of interest proposed to be received by the purchaser

$- \left(\underset{(1)}{S_{x \cdot y}}\right)$ at Office rate.

This result is equivalent to

$\pi_{x \cdot y} \cdot (a_{x \cdot y}$ taken at 5, 6, or 7 per cent. interest)

$-\underset{(1)}{p_{x \cdot y}} \cdot (a_{x \cdot y}$ taken at 3 or 4 per cent. interest),

the reason being, that the purchaser is entitled to *deduct* from the *Present Value* of the total annual cost of the Post Obit (discounted at the rate of profit he is to make, viz. 5, 6, or 7 per cent.) the *Present Value* of the Office annual premium for the Contingent Assurance (discounted at the Office rate of interest, which would be 3 or 4 per cent.).

19.—Some writers recommend the use of the following formula (which gives a lesser present Value), viz.:—

$$1 - (d + \underset{(1)}{p_{x \cdot y}}) \cdot a_{x \cdot y}$$

in which $d = \frac{i}{1 + i}$, or annual interest *due* of £1, and is usually taken at 5 per cent. for the advantage of the purchaser, whilst $a_{x \cdot y}$ is taken at a lower rate, that is, 3 per cent. The first two terms, $1 - d.\, a_{x \cdot y}$, would coincide with $S_{x \cdot y}$ or $\pi_{x \cdot y} \cdot a_{x \cdot y}$ in the preceding article, if one *same* rate of interest were involved in both expressions.

20.—The introduction of two rates of interest in the first two terms of the above, viz.:—

$$1 - (d)_{5 \text{ per cent.}} \cdot (a_{x \cdot y})_{3 \text{ per cent.}}$$

as the value of a Reversion of £1, receivable at the death of the first of two lives (without Assurance), is scarcely equitable; for the Seller is made to allow the Purchaser, instead of d_5, the supposed 5 per cent. yearly interest *due*, its present value discounted at 3 per cent., which is equivalent to allowing a much higher rate.

21.—A like form,

$$1-(d)_{5\text{ per cent.}}\cdot(a_x)_{3\text{ per cent.}} \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad (1)$$

has also been strongly recommended by some Actuaries as a just and proper present value for a *Reversion of £1 depending on a single life* in place of the usual form

$$(S_x)_{5\text{ per cent.}} \text{ or } 1-(d)_{5\text{ per cent.}}\cdot(a_x)_{5\text{ per cent.}} \quad . \quad . \quad (2)$$

which is the expression for the single premium or present value of £1 at death of a life x discounted at 5 per cent.

The first form (1) differs from (2) by

$$(d)_{5\text{ per cent.}}\cdot\{(a_x)_{3\text{ per cent.}}-(a_x)_{5\text{ per cent.}}\},$$

or the difference between the present values of a Life Annuity $(d)_{5\text{ per cent.}}$ at 3 and 5 per cent., but it cannot be supported by any satisfactory reasoning, and is objectionable from its giving *negative* results for ages under the zero point, corresponding to

$$1-(d)_{5\text{ per cent.}}\cdot(a_x)_{3\text{ per cent.}}=0,$$

or

$$(a_x)_{3\text{ per cent.}}=\frac{1}{(d)_{5\text{ per cent.}}}=(a_\infty)_{5\text{ per cent.}}$$

that is, *when the Life Annuity due at* 3 *per cent. at age* x*=the value of a* perpetuity *due at* 5 *per cent.*=21.

22.—Our own preference would, perhaps, be in favour of the formula S_x or

$$1-d.a_x$$

in which a higher rate of interest, such as 6 or 7 per cent., should be used throughout;—as we are prepared to recognize that a 5 per cent. discount by the formula S_x is not sufficiently advantageous to satisfy purchasers; considering they run the risk of locking up their money a long time before the Reversion falls in.

23.—But a much more satisfactory form may be deduced as follows (analogous to that in the preceding Articles on Post Obits), and is worthy of consideration, as it does not yet appear to have been noticed by other writers:—

Let $(\pi_x)_5$=net *annual premium or sinking fund to realize £1 at death of* x *at* 5 *per cent.;*

then $(\pi_x)_5$ is the immediate Annuity *due* that might be granted to the Reversioner in purchase of a Reversion or Post Obit of £1, receivable at death of x, crediting the purchaser with 5 per cent. for the money he advances each year.

Now if the Reversion is to be bought by a *single* present sum, the *Present Value* of the *Annuity* $(\pi_x)_5$ should be given, which, by customary rule for purchasing *Life Annuities*,

$$=\frac{(\pi_x)_5}{d_5+p_x} \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad (3)$$

*where p_x is Office premium to insure £1 at death of x.

24.—From the theoretical value of a Reversion, whatever formula be used, a deduction would have to be made, if Legacy or other duty is payable, or if legal or other expenses are anticipated to arise at the time of coming into the Reversion.

25.—For comparison, we place side by side these three forms and their numerical values at various ages, which we will designate by numbers (1), (2), (3). (See next page.) It will be seen that if a person aged 20 were entitled to a Reversion of £100, and the interest of money were 5 per cent., formula (2) would make its value £19·92, and the newly-suggested formula (3) £18·24; while, by the method now in frequent use, viz. (1), the party would not only have nothing to *receive*, but would actually be called upon to *pay* the Purchaser £8·01; thus making the possession of such Reversion a positive liability or debt. This absurd result, apart from any abstract argument, is conclusive proof that the formula from which it is obtained must be radically defective, and cannot be founded on any correct or equitable principle. The positive values given by this latter method at older ages also present equally strange results, for at age 40 it makes the value of £100 in reversion, at 5 per cent., worth only £13·64; whereas the discounted value of the same is £31·48, or, even at 7 per cent., £22·51.

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* [The value of an Annuity due of £1 is a_x, which used to be taken formerly at 5 per cent., and is

$$=\frac{1}{d_5+(\pi_x)_5} \quad . \quad . \quad . \quad . \quad . \quad \text{(see note p. 6)}$$

The modern writers substitute, in the denominator, p_x, the Office annual premium for $(\pi_x)_5$, the net premium at 5 per cent.

It may be mentioned incidentally that the ages at which the present Value $\left(S_x \text{ or } \frac{\pi_x}{d+\pi_x}\right)$ of a Reversion of £1 is $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, or $\frac{1}{f}$, correspond to the ages at which the annual premiums are equal to d, $\frac{d}{2}$, $\frac{d}{3}$, or $\frac{d}{f-1}$, respectively.

Thus P. V. of a Reversion of £100 is $\frac{100}{3}$, or £33. 6*s*. 8*d*. at age where Net annual premium is $\frac{d_5}{2}$ or £2·38 per cent. (See note to p. 5.)

In like manner Practical Estimates can be read off from an Office Table of Annual Life Assurance Premiums.]

Comparative Table *of the Values of £1 in Reversion on a Single Life by various formulæ* (1), (2), (3).

3 per Cent. By (2) or S_3 or $1-d_3\,(a_x)_3$ or $\frac{(\pi_x)_3}{d_3+(\pi_x)_3}$.

5 per Cent. By (1) or $1-d_5(a_x)_3$ or $\frac{(\pi_x)_3-(d_5-d_3)}{d_3+(\pi_x)_3}$.

" " (2) or S_5 or $\frac{(\pi_x)_5}{d_5+(\pi_x)_5}$.

" " (3) $\frac{(\pi_x)_5}{d_5+p_x}$. New Form recommended.

6 per Cent. By (2) or S_6 or $\frac{(\pi_x)_6}{d_6+(\pi_x)_6}$.

" " (3) $\frac{(\pi_x)_6}{d_6+p_x}$. New Form recommended.

7 per Cent. By (2) or S_7 or $\frac{(\pi_x)_7}{d_7+(\pi_x)_7}$.

Age.	3 per cent.	5 per cent.			6 per cent.		7 per cent.
	(2) or S_x	(1) $1-d_5(a_x)_3$	(2) or S_x	(3) New Form.	(2) or S_x	(3) New Form.	(2) or S_x
20	·3390	−·0801	·1992	·1824	·1603	·1465	·1326
21	·3446		·2035		·1640		·1358
22	·3504		·2082		·1681		·1393
23	·3564		·2131		·1724		·1431
24	·3625		·2182		·1769		·1471
25	·3681		·2237		·1817		·1514
26	·3755		·2292		·1867		·1558
27	·3822		·2350		·1920		·1605
28	·3889		·2409		·1972		·1653
29	·3953		·2463		·2021		·1696
30	·4013	+·0215	·2513	·2289	·2064	·1863	·1733
31	·4073		·2563		·2108		·1771
32	·4136		·2616		·2155		·1812
33	·4201		·2673		·2205		·1856
34	·4269		·2733		·2259		·1905
35	·4340		·2797		·2317		·1956
36	·4412		·2863		·2378		·2011
37	·4487		·2932		·2441		·2068
38	·4562		·3002		·2506		·2128
39	·4639		·3075		·2574		·2189
40	·4716	·1364	·3148	·2833	·2640	·2352	·2251
41	·4789		·3217		·2704		·2308
42	·4862		·3285		·2767		·2365
43	·4935		·3354		·2829		·2421
44	·5011		·3426		·2896		·2481

Age	3 per cent.	5 per cent.			6 per cent.		7 per cent.
	(2) or S_x	(1) $1-d_5(a_x)_3$	(2) or S_x	(3) New Form.	(2) or S_x	(3) New Form.	(2) or S_x
45	·5089		·3501		·2965		·2544
46	·5169		·3581		·3040		·2613
47	·5254		·3666		·3120		·2687
48	·5344		·3759		·3209		·2770
49	·5441		·3861		·3308		·2864
50	·5543	·2716	·3971	·3520	·3416	·2994	·2968
51	·5651		·4090		·3535		·3083
52	·5760		·4212		·3656		·3202
53	·5870		·4337		·3780		·3324
54	·5981		·4465		·3909		·3451
55	·6095		·4597		·4043		·3584
56	·6210		·4732		·4181		·3723
57	·6326		·4871		·4324		·3867
58	·6441		·5010		·4469		·4012
59	·6551		·5143		·4606		·4151
60	·6653	·4530	·5267	·4601	·4734	·4098	·4280
61	·6744		·5375		·4844		·4392
62	·6833		·5482		·4955		·4503
63	·6922		·5591		·5068		·4617
64	·7016		·5707		·5187		·4739
65	·7111		·5826		·5313		·4866
66	·7210		·5951		·5444		·5001
67	·7312		·6082		·5583		·5145
68	·7417		·6219		·5729		·5297
69	·7525		·6361		·5881		·5456
70	·7634	·6133	·6507	·5603	·6039	·5158	·5623
71	·7746		·6659		·6205		·5800
72	·7852		·6804		·6364		·5969
73	·7948		·6936		·6507		·6122
74	·8033		·7052		·6635		·6259
75	·8103		·7148		·6740		·6370
76	·8172		·7242		·6842		·6479
77	·8235		·7329		·6938		·6581
78	·8300		·7418		·7035		·6685
79	·8371		·7519		·7147		·6805
80	·8437	·7446	·7612	·6479	·7250	·6136	·6917

NOTE.—The following are the Constants occurring in the above formulæ:—

$d_3 = \cdot 0291.$
$d_5 = \cdot 0476.$
$d_6 = \cdot 0566.$
$d_7 = \cdot 0654.$

The Variables may be found as follows:—

p_x in Table 1, page 51, for Office Annual Premiums.

(π_x) in the following Table, Art. 26, page 16.

Art. 26.

TABLE *of the Value of* π_x, *the Annual Premium* (due), *to assure £100* (*or Sinking Fund* due *to accumulate £100*) *by the end of the year of death of a Person aged* x, *at* 5 *per cent. interest, Carlisle Law, Net.*

x	π_x			x	π_x		
	£.	s.	d.		£.	s.	d.
20	1	3	9	51	3	5	11
21	1	4	5	52	3	9	5
22	1	5	1	53	3	13	0
23	1	5	10	54	3	16	11
24	1	6	8	55	4	1	1
25	1	7	6	56	4	5	7
26	1	8	4	57	4	10	6
27	1	9	3	58	4	15	9
28	1	10	3	59	5	0	10
29	1	11	2	60	5	6	0
30	1	12	0	61	5	10	8
31	1	12	10	62	5	15	7
32	1	13	9	63	6	1	0
33	1	14	9	64	6	6	9
34	1	15	10	65	6	13	1
35	1	17	0	66	7	0	1
36	1	18	3	67	7	8	1
37	1	19	6	68	7	16	8
38	2	0	11	69	8	6	7
39	2	2	4	70	8	17	8
40	2	3	9	71	9	10	1
41	2	5	2	72	10	2	10
42	2	6	7	73	10	15	7
43	2	8	1	74	11	7	11
44	2	9	8	75	11	18	9
45	2	11	10	76	12	10	1
46	2	13	2	77	13	1	4
47	2	15	2	78	13	13	8
48	2	17	5	79	14	8	8
49	2	19	11	80	15	4	0
50	3	2	9				

NOTE.—[The Equivalents of π_x are—

$$\pi_x = \frac{1}{A_x} = \frac{S_x}{a_x} = \frac{1}{a_x} - \frac{1}{a_\infty} = \frac{S_x}{a_\infty\,(1-S_x)} = \frac{1}{a_x} - d.$$

(See Appendix, page 4, 'Treatise on Copyholds.')

Hence π_x at other rates of interest than 5 per cent. can be readily calculated from a Life Annuity, or an S_x Table.]

27.—In note at page 13 we have mentioned that the value of a Life Annuity due of £1 is $\frac{1}{d+p_x}$ where the Policy assured is supposed effected to extent of this value. It sometimes happens, however, that the seller has already a Policy for the whole or part of the amount required in his possession, say for P, taken out n years ago, at a premium of p_{x-n} per pound, which he is prepared to dispose of at the same time. In such case, the saleable value of the Life Interest is increased, since the necessary insurance will cost less a year through the premium on the whole, or part of it, being less. In fact, it is equivalent to his having for sale an additional annuity of

$$P\,(p_x - p_{x-n}),$$

which gives to the price an additional value of

$$\frac{P\,(p_x - p_{x-n})}{p_x + d},$$

which is in fact the Value of the Policy, calculated by Office Premiums. (See "Valuation of Policies," in the Appendix on the Investigation of the affairs of a Company, etc.)

Of Contingent Reversionary Life Interests.

28.—In the preceding Articles relating to the sale of a Reversion, it has been supposed to be a sum of money; if, however, it be a *Reversionary Life Interest, I,* of a Life, x, after death of another, y, should x survive, then the usual theoretical value would be

$$I\,(a_x - a_{x.y}),$$

supposing x to receive the *whole year's annuity I at the end of the year in which y dies. This value, putting a_x (Greek letter *alpha*) for $1 + a_x$, is

$$= I\,(a_x - a_{x.y}),$$

which may be put under the form of

$$= I\,.\,\frac{S_{x.y} - S_x}{d}$$

or

$$= \frac{I}{d + \pi_x}\left\{S_{x.y} - \pi_x.\,a_{x.y}\right\}.$$

* By the Apportionment Act (4 & 5 Wm. IV. c. 22), this would not be the case in practice, as that statute directs that a life in possession shall receive a proportion of "any rent, annuity, pension, dividend, modus, composition, or other payment," for the period elapsed between the last day of payment and the death, —*unless there be (by sect. 3) an express stipulation to the contrary.*

29.—If for π_x the Office Premium, p_x, be substituted, and $S_{x.y}$, d, and $a_{x.y}$ be taken at a high rate of interest, varying from 6 to 8 per cent., then the result would be the net Cash Value, R_i, of the reversionary interest, after the deduction made for necessary assurance on the life x for the whole duration thereof, or

$$R_i = \frac{I}{d + p_x}\left\{S_{x.y} - p_x \cdot a_{x.y}\right\} \quad . \quad . \quad . \quad (1)$$

$a_{x.y}$ is taken at 3 or 4 per cent. if a single premium is to be paid for the assurance.

30.—This result may be deduced by direct reasoning, and its propriety shown, thus:—

Let P = amount of Assurance Policy on life x, required to cover R_i, with accumulations of interest thereon till the end of the year in which occurs the death of the first of the two lives x and y, and also to cover accumulation of annual premium, Pp_x, with interest, until same event.

Now $\dfrac{R_i}{S_{x.y}}$ = *accumulated amount of* R_i,

and $\dfrac{P.p_x}{\pi_{x.y}}$ = *accumulated amount of* Pp_x,

$$\therefore \quad P = \frac{R_i}{S_{x.y}} + \frac{P.p_x}{\pi_{x.y}} \quad . \quad . \quad . \quad . \quad . \quad . \quad (2)$$

31.—Now since accumulations are only taken to the end of the year of the first death, and the Policy P is not receivable till x is dead, I must, in case of x surviving y, be sufficient to cover Pd and Pp_x the annual Office Premium still payable till x dies; and, by hypothesis, if x survive, he comes into receipt of one I at the end of the year in which y dies.

$$\therefore \quad I = Pd + Pp_x$$

$$\therefore \quad P = \frac{I}{d + p_x} \quad . \quad . \quad . \quad . \quad . \quad . \quad (3)$$

and $\quad R_i = \dfrac{I}{d + p_x}\left\{S_{x.y} - p_x \cdot a_{x.y}\right\}$ from (2)

as before.

32.—If a present Life Annuity is to be given to x, payable while x and y are jointly alive, in exchange for his contingent Reversionary Interest, then, as S_x and $a_{x.y}$ may be at the same rate of interest,

$$\text{Present Annuity} = \frac{I}{d + p_x}(\pi_{x.y} - p_x) \quad . \quad . \quad . \quad (4)$$

APPENDIX

ON

INVESTIGATIONS

INTO THE

AFFAIRS OF A COMPANY

FOR

AMALGAMATION OR BONUS DIVISIONS.

SECTION I.

As to Valuations of the Policies and Liabilities of Assurance Societies.

Art. 1.—*Let* $V_{x,n}$ = *Value of a Policy of Assurance of £1 at age* x, *after* n *years; supposing* net *annual premium* (π_x) *only to be payable.*

$V'_{x,n}$ = *Value of the same Policy, where Office Premium* (p_x) *is considered.*

Then, at the time when the Policy is effected, if no premiums had to be paid, V_x would coincide with S_x,* but as there is a contract to pay a premium, p_x,

$$V'_x = S_x - p_x \cdot a_x.$$

2.—If there were no margin or loading on the premiums, that is, if

$$p_x = \pi_x$$

then at starting $V_x = 0$

since $S_x = \pi_x \cdot a_x$.

* See definition of S_x at note to page 5.

3.—As in practice, however, the Office charges a higher rate than π_x, viz. $p_x = (\mu + 1)\,\pi_x$

then $$V'_x = -\mu \,.\, \pi_x \,.\, a_x \quad . \quad . \quad . \quad . \quad (1)$$

that is to say, at the beginning the contract is in favour of the Society to the extent of

$$\mu \,.\, \pi_x \,.\, a_x \text{ or } \mu \,.\, S_x \quad . \quad . \quad . \quad . \quad (2)$$

which is the present value of the margin (or loading for Office expenses and contingencies, and for divisions of profit) added on to the net premium π_x.

It may be mentioned, however, that μ is rarely a constant at all ages.

4.—When n years have elapsed, supposing premium just due,

$$V'_{x,n} = \pm \{S_{x+n} - p_x \,.\, a_{x+n}\} \quad . \quad . \quad . \quad (3)$$

(which is the form ordinarily used in Valuations), or

$$= \pm (\pi_{x+n} - p_x)\, a_{x+n} \quad . \quad . \quad . \quad (4)$$

5.—Until age $(x + k)$, where

$$\pi_{x+k} = p_x$$

the present value of the contract is still in favour of the Society, or $V'_{x,n}$ is negative.

6.—After n exceeds k, $V'_{x,n}$ becomes positive, and the Policy has a saleable or *Surrender Value* in favour of the Assurer, and that is the sense in which the Value of a Policy is generally understood. It is the excess of the accumulation of the premiums paid, with interest, over the proportion of Losses *estimated* (according to the Law of Mortality assumed) *as likely* to have been experienced each year. Thus, young policies have no surrender value, if the terms of the contract be adhered to.

7.—If, however, it be understood that, from the commencement, a surrender value is to be allowed at any time, the Assurer would have to be credited with this fact, and the formula (4), for surrender purposes, would be changed into

$$(p_{x+n} - p_x)\, a_{x+n} \,. \quad . \quad . \quad . \quad . \quad . \quad . \quad (5)$$

which is always positive, and not an exaggerated surrender value of a Policy, as it is the present value of the difference between the increased premium the Assurer would have to pay at his present age for his policy, and that which he is paying.

8.—A deduction is sometimes made in fixing prices for Surrender, to cover the circumstance that, as a general rule, when lives withdraw from a Society, it is probable they are good, and that the Society, having some invalid ones left, is injured by the self-selection of the Assured.

9.—We give a new form of great simplicity for the valuation of the Policies at an investigation of the affairs of a Society,

$$V'_{x,n} = \pm \{1 - (d + p_x)\, a_{x+n}\} \quad . \quad . \quad . \quad (6)$$

requiring only a Table of Life Annuities.

This equation shows that on a Policy of £1, all that the Society gains, by the death of the Life not occurring, is an annuity of $(d+p_x)$.

Hence, if the Assurer were to apply a sum of money, such as a Bonus, to make his Policy payable to himself at a future age or in case of previous death, it must be sufficient to provide for the Society a deferred annuity of $(d + p_x)$. (See Art. 39.)

10.—Again,

$$V'_{x.n} = \pm \{1 - (1 + p_x \cdot a_\infty).(1 - S_{x+n})\} \quad . \quad . \quad . \quad (7)$$

where $a_\infty = \dfrac{1}{d}$

$= $ value of a perpetuity due of £1.

This form requires only a Table of Reversions (see page 14).

11.—Again,

$$V'_{x,n} = \pm \frac{\pi_{x+n} - p_x}{\pi_{x+n} + d} \quad . \quad . \quad . \quad . \quad . \quad (8)$$

depending only on a Table of π_x, or Net Premiums, of which we have given the reciprocals in the Preliminary Remarks.

12.—Where the Valuation of Policies is by net premium, π, instead of *Office*, p, then

$$V_{x,n} = 1 - \frac{a_{x+n}}{a_x} \quad . \quad . \quad . \quad . \quad . \quad . \quad (9)$$

(*depending only on a Table of Annuities Due*), or

$$= \frac{S_{x+n} - S_x}{1 - S_x} \quad . \quad . \quad . \quad . \quad . \quad (10)$$

in terms of Reversions, S.

13.—The form in equation (8) can be reasoned out thus:—Since,

at end of n years, the Assured has paid up $V_{x,n}$, the interest on this, added to the premium he pays, or

$$V_{x,n} \cdot d + \pi_x$$

must be sufficient to insure the remainder of the Policy $(1 - V_{x,n})$, at present age, or

$$V_{x,n} \cdot d + \pi_x = \pi_{x+n} (1 - V_{x,n}) \quad . \quad . \quad . \quad (11)$$

whence $$V_{x,n} = \frac{\pi_{x+n} - \pi_x}{\pi_{x+n} + d}$$

as before.

14.—Hence, if the policy be re-valued at end of a further period of k years, we must have

$$V_{x,\overline{n+k}} = V_{x,n} + V_{\overline{x+n}} \cdot {}_k (1 - V_{x,n}) \quad . \quad . \quad (11\ bis)$$

15.—If $V_{x,n}$ be compared with π_x, or the question be, what *number*, $H_{x,n}$, of past *net* premiums upon a sum assured at age x, the Society should have in hand at a Valuation, we have

$$H_{x,n} = \frac{V_{x,n}}{\pi_x}$$

$$= \frac{S_{x+n} - S_x}{S_x} \cdot a_\infty \quad . \quad . \quad . \quad . \quad (12)$$

a_∞ being the value of a perpetuity *due*.

$H_{x,n}$ is therefore the *actual amount* for every £1 a year of net premium paid, for which the Assurer is creditor on the Society. See Table in Preliminary Remarks.

16.—In terms of annuities due

$$H_{x,n} = \frac{a_x - a_{x+n}}{1 - d \cdot a_x} \quad . \quad . \quad . \quad . \quad . \quad (13)$$

17.—In like manner, at the next Valuation, k years after, there would be $H_{x,\overline{n+k}}$ in hand, and a comparison with the previous Valuation would show that in the interval there should be an increase of the net premiums in hand

$$H_{x,\overline{n+k}} - H_{x,n} = \frac{S_{x+n+k} - S_{x+n}}{S_x} \cdot a_\infty \quad . \quad . \quad (14)$$

This increase *includes* allowance for interest on the last $H_{x,n}$, and on the net premiums paid in the interval, deduction being made for the mortality experienced.

18.—If a Policy has been valued on the principle of *net* pre-

miums, or Tables of such values are at hand, and if μ be known, then $V'_{x,n}$ can be deduced from $V_{x,n}$ as follows:

$$V'_{x,n} = V_{x,n} - \mu\,(S_{x+n} - V_{x,n}) \quad . \quad . \quad . \quad (15)$$

19.—Simple formulæ for *net* premiums may be * devised in functions of D and N symbols:

$$V_{x,n} = 1 - \frac{N_{x+n}}{D_{x+n}} \cdot \frac{D_x}{N_x} \quad . \quad . \quad . \quad . \quad . \quad (16)$$

20.—The preceding formulæ can be adapted for the case of Joint Life and Survivorship Policies by introducing the corresponding Values of S and a.

21.—For Joint Life Policies payable at the death of the first,

$$V'_{\overline{x.y},n} = 1 - (d + p_{x.y}) \cdot a_{\overline{x+n},\,\overline{y+n}} \quad . \quad . \quad (17)$$

which is probably the most convenient form, as requiring only a table of *Joint Life Annuities.*

22.—If the Policy be one of Survivorship Assurance, payable if a Life, x, die before another, y,

$$V'_{\underset{(1)}{\overline{x.y}},n} = (\pi_{\underset{(1)}{\overline{x+n},\,\overline{y+n}}} - p_{\underset{(1)}{x,y}})\, a_{\overline{x+n},\,\overline{y+n}} \quad . \quad (18)$$

23.—If tables of $\pi_{\underset{(1)}{x,y}}$ be not at hand, $V'_{\underset{(1)}{\overline{x.y}},n}$ can be deduced from the Office rates for survivorship assurance $p_{\underset{(1)}{x.y}}$, if its loading or margin be known or ascertainable, for

$$V'_{\underset{(1)}{\overline{x.y}},n} = \left(\frac{p_{\underset{(1)}{\overline{x+n},\,\overline{y+n}}}}{\mu + 1} - p_{\underset{(1)}{x.y}}\right) a_{\overline{x+n},\,\overline{y+n}} \quad . \quad (19)$$

which only requires a Joint Life Annuity Table.

The discussion of the formulæ for other kinds of assurance or endowment would be too long for our space, but the preceding remarks will suggest the necessary forms to be adopted.

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*[N_x is the sum of money which will buy at birth, for each of the survivors l_x of l_0 persons then born, a deferred annuity of £1 a year, beginning at age x. This N_x corresponds to David Jones's N_{x-1}

M_x is the sum necessary to provide an assurance of £1 to each person dying after age x.

D_x is the sum at birth necessary to provide an endowment of £1 to the survivors at age x, or it will provide annuities *due* of d (interest) and assurance at death of £1.

$$\therefore \qquad D_x = M_x + d \,.\, N_x.]$$

24.—*The whole or half of a year's Premium would have to be added in all the preceding formulæ, if the premium had just been paid, or were not due for six months.*

25.—If, on Surrender of a Policy, its full value be allowed in the form of a *free reversionary policy*, $F'_{x,n}$, then

$$F'_{x,n} = 1 - \frac{p_x}{\pi_{x+n}} \quad . \quad . \quad . \quad . \quad . \quad (20)$$

from Article 4.

26.—$F'_{x,n}$ is important, as it measures that portion of a Policy which an Assurer who has survived n years since he effected it, has already paid up or realized, after deducting an allowance for the risk incurred by the Office in the same period.

27.—Each year's payment adds to the amount so paid up on the Policy, until the commencement of the last year of life, when the corresponding value of π_{x+n} would be $\frac{1}{1+i}$ or r; and, before he pays the last premium,

$$F'_x = 1 - p_x (1 + i) \quad . \quad . \quad . \quad . \quad (\text{from } 20)$$

When it is paid, F'_x becomes £1.

28.—The progress of a Free Policy in k years, in passing from age $x + n$ to $x + n + k$, after enjoyment of assurance for those years is

$$F'_{x,\overline{n+k}} - F'_{x,n} = p_x \left\{ \frac{1}{\pi_{x+n}} - \frac{1}{\pi_{x+n+k}} \right\} . \quad (21)$$

29.—These formulæ suggest how much a Policy should be reduced, if an Assurer desire to omit *altogether* the payment, say, of his $\overline{n+1}^{\text{th}}$ premium, and the risk of the Office be *suspended* for that year. Let $S_{x+n\,\overline{1|}}$ be the premium for an insurance of £1 for one year at age $x + n$. Then the Reduction in Policy should be

$$\frac{p_x - S_{x+n\,\overline{1|}}}{\frac{l_{x+n+1}}{l_{x+n}} . r . S_{x+n+1}} = \frac{p_x - S_{x+n\,\overline{1|}}}{\pi_{x+n} - S_{x+n\,\overline{1|}}} \left(1 - \frac{\pi_{x+n}}{\pi_{x+n+1}}\right)$$

$$= \frac{p_x - S_{x+n\,\overline{1|}}}{\pi_{x+n} - S_{x+n\,\overline{1|}}} . (F_{\overline{x+n}.1}) \quad . \quad . \quad (22)$$

30.—If the omission take place at an age when π_{x+n} does not differ very much from p_x, the first fraction may be neglected, which would give the

$$\text{Reduction} \quad = F_{\overline{x+n}.1} \qquad \text{(see Art. 25)},$$

which is the amount of a *net* Free Policy corresponding to a new Policy taken out at age $(x + n)$ and dropped at end of one year. In fact, this value would be in favour of the Company as soon as π_{x+n} exceeds p_x and might with safety be used.

In the above,

$$F_{\overline{x+n}.1} = (1 - \frac{\pi_{x+n}}{\pi_{x+n+1}}) = (1 - \frac{p_{x+n}}{p_{x+n+1}}) \quad . \quad . \quad . \quad (23)$$

if the margin on the premiums be constant; so that the value of $F_{\overline{x+n}.1}$ can be calculated from the Society's office tables.

31.—Even where the Policy is not suspended as in preceding Article, a practical method is nevertheless afforded by formula (22) to provide for cases where Assured is not able to pay a premium. The reduction might be permanent or temporary, or the original amount assured might be reinstated afterwards on payment of the omitted premium, with interest.

32.—Again, since $F_{x,n}$ is Free Policy Assurer gets by past payments for a Life Policy of £1, $1 - F_{x.n}$ is what he loses in amount assured by dropping his Policy.

If he take out a Policy for that amount at present age $\overline{x + n}$ and dropped it at age $\overline{x + n + k}$, then

$$(1 - F_{\overline{x+n},k}) \cdot (1 - F_{x,n})$$

is what he would lose in amount assured by dropping his new Policy.

This is equal of course to what he would lose in amount assured by dropping a Life Policy of £1, effected at age x, at the end of a term of $(n + k)$ years, or

$$(1 - F_{x,n}) \cdot (1 - F_{\overline{x+n}.k}) = 1 - F_{x,\overline{n+k}} \quad . \quad . \quad . \quad (24)$$

33.—This example shows

$$F_{x,\overline{n+1}} = F_{x,n} + F_{\overline{x+n}.1} - F_{\overline{x+n}\,1} \cdot F_{x,n}$$

or the progress of a Free Policy in passing from age $(x + n)$ to $(x + n + 1)$. The same relation holds of $F_{x,n}$.

34.—*In one or two offices that have been recently established, a privilege is held forth, by way of attraction to the public, that any*

Assurer, desirous to discontinue his policy, will be allowed a free Reversionary Policy equal to the amount of the Premiums he has paid. This is unsafe for the Office, until

$$F_{x,n} = \text{or} > n \cdot p_x$$

or

$$1 - \frac{p_x}{\pi_{x+n}} = \text{or} > n \cdot p_x$$

or

$$p_x^{-1} - \pi_{x+n}^{-1} = \text{or} > n$$

or until the amount, that was assured for £1 a year of the original office premium, exceeds by £n the number of pounds that £1 a year of net premium would assure at the present age.

When the margin of the Office premium p, over the net π, is known, such that

$$p = (\mu + 1)\,\pi$$

the safety of the privilege can be tested, on a policy of n years' standing, by seeing whether

$$\frac{(\mu + 1)}{p_{x+n}} - \frac{1}{p_x} = \text{or} < n$$

(*See Table of Reciprocals of π_x given in the Preliminary Remarks.*)

Section II.

As to Divisions of Profit and Allotments of Bonus.

In the Preliminary Remarks, we have briefly pointed out the proper mode of measuring the *Liabilities and Assets of an Assurance Company*, and we will now consider the Allotment of Bonuses.

As to Allotment of Bonus.

35.—Actuaries are not agreed as to the proper principle for apportioning among the Policies the Profit declared in the Balance Sheet as available for division; and various methods are practised, which, although perhaps admitted as objectionable, are continued at subsequent divisions, on account of the almost insuperable difficulty of making any alteration without disturbing the vested rights of the Assurers, many of whom in such Societies anticipate in future Bonuses a compensation for any error in the principles of allotment in the past.

I. At the epoch of a *First Division*, one mode of allotment

adopted is to form a Unit, equal to the sum of the net values, $V_{x,n}$ of the Policies. For subsequent Divisions the Unit being made equal to the progress of the value of the Policy in the period; that is to say, if $n + k$ be the number of years the Policy has been in force, of which k is the number elapsed since the last Division, the Unit would be

$$V_{x,\overline{n+k}} - V_{x,n}$$

in which the *Amount of the Policy* is taken as including the Bonus declared at previous Divisions.

This plan has the recommendation of crediting the Assurer with the whole amount of the accumulation of the premiums he has paid, with interest, deducting the proportion to defray the losses by death, and the margin for expenses and profits.

Those who advocate this method, make their valuations by net premiums, and argue that the principle adopted in dividing profits should not be different from that which would be fair if the Office were going to wind up or pay off its members.

The argument is that, as the office margin on the net premiums is contributed for expenses and contingencies, any unabsorbed portion of it goes to make profits, and as $V_{x,n}$ is all that the Policy-holder is actually creditor on the Society in respect of his past payments, the surplus should be divided in proportion to $V_{x,n}$.

II. Another plan, which is advertised in the Prospectus of a Scotch Office, is thus stated:—

"*The amount of Premiums received under each Policy, with accumulated interest to the time of Valuation, requires to be ascertained, and the difference between these and the values of the corresponding Policies constitutes, of course, the profit arising from each insurance.*

"*Then the total available Profit being divided in proportion to these various tabular profits or differences from Policies, the quotients give the share of present profit falling to be allotted to each.*"

This process is equivalent to taking as a Unit

$$p_x \cdot A_n - V_{x,n}$$

where A_n = amount by the end of n years of an Annuity due of £1.

In this it is overlooked that no $p_x A_n$ can exist in the Society's hands on any Policy, as each year a portion of the p's, paid by the members who survive, has been used to pay the Claims of those who have died.

Indeed, $V_{x,n}$ itself would be exactly equal to $\pi_x \cdot A_n$, were it not for the annual losses on the policies; and this method of allotting

Bonus in proportion to the difference is, in fact, to proportion it to the Losses of the Society.

III. Another plan, adopted by many of the leading Offices in England and Scotland, is, *to allot the Surplus funds among the policy-holders in the form of a Reversionary Bonus, at an equal rate per cent. per annum on the sums assured,* according to the whole *duration* of the assurances at the time of the allotment, without reference to the ages of the parties.

But the actual present values of such Reversionary Bonuses (which are payable only when death occurs) vary in reality with the ages of the assured, and are proportioned to the values of S for each life at the time of the valuation, *i.e.* to the present value of a Reversion of £1 at their respective ages. Thus an equal Reversionary Bonus of £2 per cent. per annum on policies of 5 years' standing, or £10 in all, is, at 3 per cent. discount, only worth in present money £4 at age 30, whereas it is equivalent to £6. 13*s.* if the present age be 60.

If G = whole Profit available for Division, the allotment will be correct under this plan if made in proportion to the present values of the risks, so as to give per £1 assured an equal Unit of Reversionary Bonus, b, for every year of standing. The share, B, of each policy, P, would be worth in present value

$$B = n \,.\, b \,.\, P \,.\, S_{x+n}$$

where

$$b = \frac{G}{\Sigma\,(n \,.\, P \,.\, S_{x+n})} \quad . \quad . \quad . \quad (1)$$

IV. Another method in use is to allot the surplus profits on the plan of III., but in *proportion to the number, only, of years' duration* of each Policy *since the last Division,* and to the amount assured, including the previous bonuses.

V. A fifth method of allotment is in *proportion to the amount paid in premiums,* without interest, since the commencement of the Policy; treating each premium, p, or the margin of percentage thereon, as having given rise to the profits.

This plan has the advantage of simplicity of calculation, and consists in apportioning the profits according to the fructification which each premium paid by the Assured has experienced. Thus, a Policy, upon which ten premiums have been paid, would be considered as entitled to ten Units of Bonus on the first year's premium, nine on the second, and so on, down to one on the last, or, in other

words, to fifty-five Units on the Policy. The present value of the share would be

$$B = \frac{n(n+1)}{2} p \cdot b$$

where

$$b = \frac{G}{\Sigma\left(n \cdot \frac{n+1}{2} \cdot p\right)} \quad . \quad . \quad . \quad (2)$$

This is equivalent to an application of the Bonus in the nature of simple interest on the premiums, and does not seem objectionable on the score of unfairness.

VI. Where the valuation is by Office premiums, and $V_{x,n}$ has not been calculated, another mode is to adopt as a Unit the accumulated amount of the premiums with interest, without deductions for losses; *i.e.*, $p_x \cdot A_n$ at first division, and $p_x\ (A_{\overline{n+k}} - A_n)$ at subsequent divisions.

As to the Application of the Bonus.

36.—The share of each Policy in the divisible profits, G, of a Society at the time of a Valuation represents an *immediate* Bonus, B, although, if the assured elect to take this Bonus in cash, a deduction is sometimes made to compensate the Society for the perhaps undesirable withdrawal of the amount from its funds.

The immediate Bonus, B, is convertible, by dividing by S_{x_1} (if the age at the time of the allotment be x_1) into an equivalent fixed *Reversionary Bonus*, payable at death, or, dividing by a_{x_1} or $a_{x_1\overline{n}|}$, it is applicable to a fixed annual reduction in the premium, either permanently for the whole of life, or until the next epoch for Division of Profits.

If B be converted, as suggested in the Preliminary Remarks, into an *increasing* Reversionary Bonus or an increasing annual Reduction of premiums,—that is to say, one that is greater for each year the assured lives after the date of the division,—then B would have to be divided by* S'_{x_1} in the one case, and by a'_{x_1} in the other, so that the

* [S'_x being single premium for an increasing assurance which is £1 if death occur in the first year, £2 if in second, or £n if in nth year,

$$\therefore \quad S'_x = \frac{\Sigma M_x}{D_x};$$

and if π'_x be corresponding annual premium, then

$$\pi'_x = \frac{\Sigma M_x}{N_x}$$

The uniform payment of π'_x annually is equivalent to an increasing one of

rate of increasing Reversionary Bonus, b, would be $= \frac{B}{S'_x}$, and if the assured die in the nth year after allotment, his representatives would receive $(n \,.\, b)$ in return for this share in profits, B. In like manner, the rate of increasing reduction of premium,

$$\rho = \frac{B}{a'_{x_1}} \quad . \quad . \quad . \quad . \quad . \quad . \quad (3)$$

or the reduction in the nth payment after the allotment in return for this particular share of the profits, B, would be $n\,\rho$.

37.—If repeated allotments be applied in Increasing reduction of the premium, the total extinction of the payment would ensue at an earlier date than in the case of an Invariable annual reduction.

Now the Assurer can be permitted to select either—

1°. That the reductions should tend to the extinction of the annual payment at a given age; or,

2°, be left to ascend as the Assurer continues to live, in which case he may live to cease to pay any premium himself, and enter upon the receipt of an increasing annuity.

As regards the first, if n be the number of years' interval (usually five or seven) at which the allotments are made, and $(x_1 + gn)$ be the given age at which the extinction is desired to take place, then the amount of each successive reduction in return for the successive Bonuses B_1, B_2 .... allotted, will ascend up to the gnth year, and then remain constant; so that if B_1 be the Bonus, ρ' the corresponding reduction,

$$B_1 = \rho' \left\{ a'_{x_1 \overline{gn}|} + gn \,.\, \frac{l_{x_1+gn}}{l_x} \,.\, r^{gn}\, a_{x_1+gn} \right\} \quad . \quad . \quad . \quad . \quad . \quad (4)$$

In like manner

$$B_2 = \rho'' \left\{ a'_{x_1+n \overline{(g-1).n}|} + (g-1).n \frac{l_{x_1+g.n}}{l_{x_1+n}} \,.\, r^{(g-1)n} \,.\, a_{x_1+g.n} \right\} \quad . \quad . \quad (5)$$

and it will depend upon the amount and number of B's as to whether his premium will be extinguished at age $(x_1 + g\,n)$ or not.

S_x, S_{x+1}, S_{x+2} .... each year, and S'_x is the value of such irregularly increasing Annuity S_x, S_{x+1}, S_{x+2} ....

If a'_x, the value of an increasing annuity *due*, be tabulated from its value $\frac{\Sigma N_x}{D_x}$, so that the annuity be £1 at starting, £2 the second year ..... £n the nth year, then

$$S'_x = a_x - d \,.\, a'_x \quad . \quad . \quad . \quad . \quad . \quad . \quad (1)$$

or, in another form, taking away the denominator D_x

$$\Sigma M_x = N_x - d\,\Sigma N_x \quad . \quad . \quad . \quad . \quad . \quad . \quad (2)]$$

38.—If a Bonus, B_1, be allowed at age x_1, and the Assured desire to apply it so that at some future unknown age, $x_1 + y$, the payment of his annual premiums, p_x, may cease, we have

$$B_1 = p_x \cdot \frac{N_{x_1+y}}{D_{x_1}}$$

whence $$N_{x_1+y} = \frac{B_1 \cdot D_{x_1}}{p_x} \quad . \quad . \quad . \quad . \quad . \quad (6)$$

which gives y by comparing this result with a Table of N. Similarly, the next Bonus will bring the age y earlier.

39.—If the Bonus be applied to make not only the *payment of the premiums cease, but the amount assured itself become payable to the Assurer at age $x + z$ or in case of previous death, B must suffice to meet the deferred Annuity $(d + p_x)$, or the annual interest on the amount assured as well as the premium.

$$\therefore \quad B_1 = (d + p_x)\frac{N_{x_1+z_1}}{D_{x_1}}$$

whence $$N_{x_1+z_1} = \frac{B_1 D_{x_1}}{d + p_x} \quad . \quad . \quad . \quad . \quad (7)$$

and z_1 can at once be determined by simple inspection of a Table of N (see Article 9).

40.—In like manner, a second Bonus, B_2, allotted at age x_2, would be applied to bring the result out at an earlier age, $x_2 + z_2$, than $x_1 + z_1$, and B_2 must be sufficient to buy a temporary deferred Annuity *due* of $d + p_x$, deferred till age $x_2 + z_2$, and lasting till age $(x_1 + z_1 - 1)$ inclusive.

$$\therefore \quad B_2 = (d + p_x)\frac{N_{x_2+z_2} - N_{x_1+z_1}}{D_{x_2}}$$

in which z_2 is the only unknown quantity, since from (7)

$$B_2 = \frac{(d + p_x) N_{x_2+z_2}}{D_{x_2}} - B_1 \cdot \frac{D_{x_1}}{D_{x_2}}$$

$$\therefore \quad N_{x_2+z_2} = \frac{B_2 \cdot D_{x_2} + B_1 \cdot D_{x_1}}{d + p_x} \quad . \quad . \quad . \quad . \quad (8)$$

whence z_2.

The reader will notice that $B_1 \cdot \frac{D_{x_1}}{D_{x_2}}$ is the amount of the previous Bonus, improved to the next division, allowing for the probability of the life surviving till that time.

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* [*The Problem in this article has been investigated in two Papers, published in the Sixth Volume of the 'Assurance Magazine' (pp.* 290 *and* 344); *but the writer has used for his purpose an unnecessarily lengthy method.*]

41.—Similarly, the third Bonus, B_3, allotted at age x_3, would bring out the age of realization, $x_3 + z_3$, of the policy, from

$$N_{x_3+z_3} = \frac{B_3 \cdot D_{x_3} + B_2 \cdot D_{x_2} + B_1 D_{x_1}}{d + p_x} \quad . \quad . \quad . \quad (9)$$

and so for successive Bonuses. It is to be remarked that these equations are independent of the previous z's.

42.—If in previous formulæ the Bonuses be assumed of equal amount, B, and annual, commencing at age x of Assurance, and continuing up to the year before the age at which the Policy is receivable, we have

$$N_{x+z} = B \cdot \frac{D_x + D_{x+1} + \ldots + D_{x+z-1}}{d + p_x}$$

$$= \frac{B}{d + p_x} (N_x - N_{x+z})$$

$$= \frac{B \cdot N_x}{B + (d + p_x)} \quad . \quad . \quad . \quad . \quad . \quad . \quad (10)$$

43.—By putting π_x for p_x in the preceding equation, we have the age, $x + z$, at which an Assurer can make his Policy payable to himself if he live or in case of previous death, provided he pay in addition to the ordinary net premium, π_x, any given annual margin, B.

44.—Conversely, if $x + z$ be a given age, (10) gives the extent of the margin, B, over π_x, to buy an *Endowment Assurance*, or

$$B = \frac{N_{x+z}(d + \pi_x)}{N_x - N_{x+z}} \quad . \quad . \quad . \quad . \quad . \quad . \quad (11)$$

45.—This last equation agrees with ordinary formulæ for an Endowment Assurance, for the total annual payment the Assurer makes is

$$(B + \pi_x) = \frac{N_{x+z}}{N_x - N_{x+z}} (d + \pi_x) + \pi_x$$

$$= \frac{N_{x+z} \cdot d + N_x \cdot \pi_x}{N_x - N_{x+z}}$$

$$= \frac{N_{x+z} \cdot d + M_x}{N_x - N_{x+z}} \quad . \quad . \quad . \quad . \quad . \quad . \quad (12)$$

or, if preferred, $$= \frac{M_x - M_{x+z} + D_{x+z}}{N_x - N_{x+z}} \quad . \quad . \quad . \quad . \quad . \quad (13)$$

See note to p. 23.

The reader will observe that the M portion of the fraction represents the Death part of the Premium and the D the Endowment part.

SECTION III.

As to Guaranteed Bonuses.

46.—If the plan, adopted by an Assurance Society, be to charge in addition to p_x (the Office Premium for simple assurance *without* profits), such a further margin over the net mathematical rate π_x, as would enable it to *guarantee* a certain Reversionary Bonus payable at death:—Then the proper addition to p_x would be found as follows,—Supposing all expenses and other contingencies of the Society to be provided for by the margin already in p_x over π_x, and by a higher rate of interest being realized than is allowed in the calculation; also, by the lapsing of policies, etc.:—

I. Let the guaranteed Bonus be t per £ of the sum assured, for each year of standing of Policy, so that the Assured shall receive $1 + nt$ at death if it occur in the nth year:—then if $\chi_x =$ annual premium for an assurance of £1 and such an increasing Bonus, a *portion $= t \,.\, \pi'_x$ is paid as a premium to assure $n \,.\, t$ if death occur in nth year, and the remainder

$$\chi_x - t \,.\, \pi_x' = p_x$$

$$\therefore \qquad \chi_x = p_x + t \,.\, \pi'_x \,. \qquad . \qquad . \qquad (1)$$

Similarly $\qquad$ single $\chi_x = \overline{\mu + 1} \,.\, S_x + t \,.\, S'_x \qquad . \qquad (2)$

if $\qquad p_x = (\mu + 1)\, \pi_x$

Example: If $t = \cdot 02$, or the Bonus be 2 per cent. per annum of the sum assured (an amount not unfrequently allotted), then

$$\chi_x = p_x + \cdot 02 \,.\, \pi'_x$$

or

$$= \frac{(\mu + 1)\, M_x + \cdot 02\, \Sigma\, M_x}{N_x}$$

II. Let the guaranteed *Reversionary* Bonus be a return of t per pound of all the annual premiums, $\underset{t}{\phi_x}$, paid after n years (n being equal to the time in which the Assured will have paid in £1 in premiums). The Bonus will thus be $t \,.\, \underset{t}{\phi_x}$ if death occur in the $\overline{n + 1}$th year; $2\, t \,.\, \underset{t}{\phi_x}$ if in the $\overline{n + 2}$th year, etc.

Now the margin over p_x, or $(\underset{t}{\phi_x} - p_x)$, must = the annual premium for a deferred assurance of $t \,.\, \underset{t}{\phi_x}$ at the end of n years, $2 \,.\, t\, \underset{t}{\phi_x}$ at end of $\overline{n + 1}$ years, etc.:—

---

* See note to Art. 36, for a definition of π'_x.

$$\phi_{\substack{x\\t}} - p_x = t \,.\, \phi_{\substack{x\\t}} \,.\, \frac{\Sigma M_{x+n}}{N_x}$$

$$\therefore \qquad \phi_{\substack{x\\t}} = \frac{p_x}{1 - t \,.\, \dfrac{\Sigma M_{x+n}}{N_x}} \quad . \quad . \quad . \quad (3)$$

III. If the Bonus in II. commence at once, we must put $n = 0$, and $\phi_{\substack{x\\t}}$ becomes

$$= \frac{p_x}{1 - t \,.\, \dfrac{\Sigma M_x}{N_x}} \quad . \quad . \quad . \quad (4)$$

or

$$= \frac{p_x}{1 - t \,.\, \pi'_x} \quad . \quad . \quad . \quad . \quad (5)$$

IV. If the Bonus be a return of all the premiums, $t = 1$,

$$\phi_{\substack{x\\1}} = \frac{p_x}{1 - \pi'_x} \quad . \quad . \quad . \quad . \quad (6)$$

47.—If the Guaranteed Bonus be an *increasing Reduction* of Premium, commencing at the end of n years, various modes of calculation may be adopted, according to the extent of the Reduction intended. A simple case is that where the Assurer is to receive, as in Table 16, page 160, an annual increasing reduction equal to the interest at some given rate on all the premiums he has paid, and after the premium is extinguished, an increasing Deferred Annuity. Here we have only to assume that in calculating the premium, say $p_{\substack{x\\1}}$, the Assurer is credited with no interest, so that he may receive it annually during his life:—

$$\therefore \qquad p_{\substack{x\\1}} = \left(\frac{M_x}{N_x}\right)_{(i=0)}$$

$$= \frac{1}{e_x + \frac{1}{2}}$$

where e_x is the expectation of life at age x.

48.—Conversely, if the excess of the Bonus office rate over the *non-profit* rate be a known quantity, say $\mu_1 \,.\, \pi_x$, then, in consideration of the Assurer at age x paying $\mu_1 \,.\, \pi_x$ a year more than is necessary for a simple assurance of £1, an increasing yearly bonus, commencing at an agreed age, x_1, might be guaranteed, on the plan suggested in the Preliminary Remarks, which (in the case of the death occurring, say in the nth year after x_1) would be,—

$$= \frac{\mu_1 \pi_x}{\left(\frac{\Sigma M_{x_1}}{N_x}\right)} \quad . \quad . \quad . \quad . \quad (7)$$

since $\frac{\Sigma M_{x_1}}{N_x}$ is the annual premium for an increasing assurance, effected at age x, but not to commence till age x_1. This result is

$$= \mu_1 \cdot \frac{M_x}{\Sigma M_{x_1}} \quad . \quad . \quad . \quad (8)$$

49.—If instead of the increasing rate of annual Bonus, as in the preceding Article, $\mu_1 \pi_x$ had been applied to obtain a fixed Bonus or increase to the Policy, it would have been μ_1 pounds.

Section IV.

As to Average Ages, and the Limit of Assurance Risk to be kept by a Society.

50.—The considerations of *Moral and Mathematical Expectation* given in a previous Appendix, show that *it is disadvantageous to an Assurance Society to grant Policies of the* same *amount to Assurers of* different *ages, or of* different *amounts where the ages are the* same.

I. *As to the average age of Policies.*—In valuing Policies, various arrangements are usually made for classifying them according to what are intended to be 'average' ages, so as to diminish the labour of calculation. The 'average age' of two or more lives is that which would give to the Society the same results, in respect to risk, average duration of live, and the general contingencies of existence, on one Policy for the whole amount assured, as attend the aggregate of the Policies on separate lives. Hence, by way of example, even in the extreme case of only two policies being considered, of different amounts, P_1, P_2, at ages, say 30 and 60, it would not be correct to say that they are equivalent to one of $P_1 + P_2$ at age 45, nor that the average age is 45, even when $P_1 = P_2$; for the Expectation of a Risk (whichever way it be considered, whether by present value, or with regard to ultimate payment at death, or in respect to the current risk each year) is not the same on a policy at the

mean age for the sum of the two amounts assured, as on the two separate Policies. In other words, the *Average age* will not lie midway between two ages, or be equal to the mean age.

51.—There is no method that can be applied practically which would give an age *truly representing*, even in respect to *Mathematical* expectation, an equivalent for the ages of the lives in the separate Policies. When relative or *Moral* expectation in respect to Policies is considered, the average age of policies on lives of the same age, but for different amounts, is no longer that age:—for instance, suppose three policies, for £100, £200, and £1000, on lives aged 30; the moral expectation attending such Policies is not equal to that of one Policy for £1300 at the same age.

II. *As to Limit of Assurance Risk to be kept by a Society.*—This leads on to the remark that, in order that the *Moral expectation* of the current risks of a Society at the various ages may not be greatly unequal while it is young, or when, from that or other causes, it has not a sufficient number of lives of about the same ages to form an Average, then the *Limit of Assurance kept* at each age should be diminished as the age is greater. Thus if £3,000 be the amount of policy granted on a life aged 30, not more than £1,677 should be granted on a life aged 60, otherwise the Society would experience *Moral* disadvantage; for it is obvious that although, from the Premiums being larger in Policies on advanced ages, the value of the *Mathematical* expectation of the total ultimate payments received by a Company from an assurance on an old life may be equal to that from a corresponding assurance on a younger and consequently longer enduring life, yet the *Moral* expectations of the immediate risks for any current period can only be rendered equal to each other, or nearly so, by a large average of about the same age, or by some system of graduation of the amount assured, so as to tally with the increase of immediate risk attending the fact of the ages being older. There is no means, indeed, of fixing the amounts, so that the proportion of the increase of the Moral expectations of the risks attending the policies in the office as they advance in age shall year by year remain the same. This, as the Office gets older or obtains a larger business, is, however, unimportant, the object being to avoid Aberration and consequent loss that may arise from want of an average number of lives of about the same ages. In selecting a decreasing limit of assurance, various ratios will present relative degrees of argument in their favour, but

the one we rather incline to is:—*That the relative amounts assured at various ages should be proportional to the corresponding values of* a_x, which represent the equivalent of the number of premiums the Society is likely to receive on each Policy: always supposing (as may, in general, safely be done) that the premiums themselves are properly calculated to correspond to the ages of the lives assured. This ratio would give a sufficiently accurate adjustment to equalize the *moral* expectation that the lives will last long enough to pay a sufficient *number* of premiums to prevent the Society from losing by them. Thus, as we have said before, if at age 30 the limit of the Society's assurance is fixed at £3,000, at 40 it should be only

$$\frac{3{,}000\ a_{40}}{a_{30}} = £2{,}648$$

at age 60 it would be

$$\frac{3{,}000\ a_{60}}{a_{30}} = £1{,}677$$

See the table at p. 7.

52.—Although we recommend this peculiar ratio, our readers can, by the aid of the method in the Appendix on Probabilities (Art. 13), deduce a series of values of the moral expectation, to be used as limits of Assurance at each age, which should correspond to the values of $(1 - p)$, or the chance of dying that each life has, in the period for which the equalization of the moral expectation is desired. For instance, if 5 years were the time, then, at age 30 $(1 - p)$ or the chance of death would be $\frac{153}{3066}$ or $\frac{5}{100}$ nearly, and at age 60 it would be $\frac{327}{1887}$ or $\frac{17}{100}$, and the *mathematical* expectation of the older policy becoming a claim on the Society is as 17 to 5 against the younger policy; but there would still be (according to Art. 14, Appendix on Probabilities) a *moral disadvantage* to the Society in granting these Policies of equal amount, where the risks for the period are so disproportioned, even if the premiums charged were according to these ratios.

To make the calculation with accuracy, it would of course be necessary to take the chance of the death for each of the years of the period, since the policies are payable within three months after death, whenever it may occur.

APPENDIX

ON

THE TRUE LAW OF SICKNESS

IN

FRIENDLY SOCIETIES.

1.—Let, as stated in Art. 101 p. 107, c be the constant minimum rate per annum, at all ages, of Sickness, defined as Inability to Labour, to which human beings are subject, on the average of a large number of lives, and which depends upon their Race, the Climate of their habitations, etc.;

σ_x, the rate experienced on the average at age x;

and $$E_x = \sigma_x - c$$

or the quantity that σ_x exceeds c.

Then, we have found that the True Law of Inability to labour, through Sickness, consists in the relation that, for successive quinquennial periods,

$$E_x = E_{x-5} + E_{x-10} \quad . \quad . \quad . \quad . \quad (1)$$

or, in another form,

$$\sigma_x = \sigma_{x-5} + \sigma_{x-10} - c \quad . \quad . \quad . \quad (2)$$

2.—If c be eliminated, we have

$$\sigma_x = 2\,\sigma_{x-5} - \sigma_{x-15}$$

or $$\sigma_x - \sigma_{x-5} = \sigma_{x-5} - \sigma_{x-15} \quad . \quad . \quad . \quad . \quad (3)$$

that is to say, the difference between the rate of sickness, at an interval of 5 years, is equal to the previous difference at an interval of 10 years.

3.—From (1) we have by summation of the E's

$$E_{x+5n} = u_n \,.\, E_{x+5} + u_{n-1}\, E_x$$

in which the coefficients u_n are found by the relation

$$u_{n+1} = u_n + u_{n-1}$$

and are terms of the series,

1, 1, 2, 3, 5, 8, 13, 21, etc.

or, the probable rate of sickness $5n$ years hence may be estimated in terms of two past experiences at an interval of 5 years.

4.—The above can be made

$$E_{x+5n} = u_{n+1} E_x + u_n . E_{x-5} \quad . \quad . \quad . \quad (4)$$

5.—If $E_{x+5} = E_x$ at commencement, such as sickness at 25 = that at 20, nearly, then

$$E_{x+5n} = u_{n+2} E_x \quad . \quad . \quad . \quad . \quad (5)$$

6.—From (3) we can deduce

$$[\sigma_{x+1} + \sigma_{x+2} + \sigma_{x+3} + \sigma_{x+4} + \sigma_{x+5}] = [\sigma_x + \sigma_{x-1} + \sigma_{x-2} + \ldots \sigma_{x-9}] - 5c \ldots (6)$$

whence we see that, if we suppose a Society for its protection to take the unfavourable view that all now alive at age x will survive the coming quinquennial period, and expose the Society to loss from Sickness, the maximum amount, it is likely to pay per head on a large average of members, can be expressed in terms of the rates experienced in the last 10 years. The actual result, considering that deaths in the interval may occur, would be probably less.

In another form, putting E for $\sigma - c$ in equation (6),

$$\Sigma (E_{x+1} \text{ to } E_{x+5}) = \Sigma (E_{x-9} \text{ to } E_x) \quad . \quad . \quad (7)$$

7.—From two quinquennial experiences, E_x and E_{x+5}, the *average* rate of sickness during the next quinquennial period may be deduced with sufficient approximation by supposing it to be the mean between the rates at the beginning and end of the period:—that is to say, if $E_{x+12\frac{1}{2}}$ be the average sickness for the period between $x + 10$ and $x + 15$, it may be taken,

$$= \frac{E_{x+10} + E_{x+15}}{2}$$

then

$$E_{x+12\frac{1}{2}} = \tfrac{3}{2} E_{x+5} + E_x \quad . \quad . \quad . \quad (8)$$

* SUPPLEMENTARY

CHURCH PROPERTY & COPYHOLD TABLES.

	Tables	Page	Instructions and Practical Remarks. Page
Advowsons	T	5	5
Dilapidations at Death—Present Value of	(IV & V)	(67)	4
Fines every Seven Years, &c. ...	R	(72) and 4	(72)
Fines at Death		(67)	(61)
Fines in Perpetuity		(41)	(41)
Ground Rents	Q	(42)	(40)
Heriots		(67)	(62)
Income—Value of for Life	S	4	4
Leases, value of—			
For Single Life ..... p. 39, &	S	4	(38)
For the longest of three lives		(Appx. 13)	(Appx. 12)
For a term of years	Q	3	3
For two lives	X	6	(61)
Lives, Exchange of		Note 3 to Table Q	(Appx. 12)
Next Presentations	U	5	(Appx. 6)
Policies, value of	S	4	4
Rack Rents, value of	Q	(42)	(40)
Rent Charges, value of	Q	(42)	(40)
Repayment of Charge on Property		(54)	(52)
Reversions, value of.....	S	4	(67)
Sinking Fund to accumulate £100 at the end of any number of years	(53)	Note 2 to Table Q	(52)
Sinking Fund to provide for Dilapidations at Death		(55)	(66)
Term Annuity—Amount of	Q		
Time in which Money doubles, &c.		(59)	
Tithes, value of	Q	(42)	

* For other Tables see the "Treatise on the Enfranchisement of Copyhold, Life Leasehold, and Church Property," to which the figures above in brackets refer.

(*4th Edition*, 192 *pages*, 3*s*. 6*d*.)

TABLE P.

Showing the AMOUNT that £100 will *accumulate* to with *compound interest* at the end of a given *term of years*.

Term.	AT 3 per cent.	AT 5 per cent.	Term.	AT 3 per cent.	AT 5 per cent.
1	103.00	105.00	10	134.39	162.89
2	106.09	110.25	15	155.80	207.89
3	109.27	115.76	20	180.61	265.33
4	112.55	121.55	25	209.38	338.64
5	115.93	127.63	*30	242.73	432.19
6	119.41	134.01	35	281.39	551.60
7	122.99	140.71	40	326.20	704.00
8	126.68	147.75	45	378.16	898.50
9	130.48	155.13	50	438.39	1146.74

* EXAMPLE.—£100 will amount at the end of 30 years to £242. 14s. 7d., if interest be made at the rate of 3 per cent. per annum, or to £432. 3s. 10d. at 5 per cent.

Notes:—1.—To find the *present value* of a sum of money payable at the end of any number of years, divide that sum by the amount in the above Table and multiply by 100.

2.—*To find the* amount *of* £100 *at the end of any number of years not given in the above Table, take the product of the figures opposite any two terms in the Table, which, added together, would make up the term required, and divide by* 100. *Thus, the amount of* £100 *at the end of* 33 *years,* (30 *years and* 3 *years*), *is, at* 5 *per cent.*, (£432.19 × 1.1576) *or* £500.31. *Again, the amount of* £100 *at* 3 *per cent. at the end of* 100 *years* (50 + 50) *is* (£438.39 × 4.3839), or £1921.86.

3.—As to the time in which Money Doubles, see note, p. 59, "Treatise on Copyholds," for our remarkable theorem, that—for all rates per cent. under 10 per cent., the number of years in which a sum of money will Double itself at compound interest, is simply 70 divided by the rate per cent.

EXAMPLES.—1.—*Divide* 70 *by the rate of interest per cent.*, and take that whole number which is *nearest* to the quotient obtained.

Thus, if the rate of interest be—

2 per cent.	then the number of years will be			$\frac{70}{2}$	or	35	years nearly.
$3\frac{1}{2}$	"	"	"	$\frac{70}{3\frac{1}{2}}$	"	20	" "
5	"	"	"	$\frac{70}{5}$	"	14	" "
8	"	"	"	$\frac{70}{8}$	"	9	" "
10	"	"	"	$\frac{70}{10}$	"	7	" "

2.—The time in which money *doubles* being thus ascertained, to find the further time in which it will become *threefold*, divide the doubling period by 1.70; *fourfold*, by 2.40; *fivefold*, by 3.10; *sixfold*, by 3.80; and so on, the divisor increasing in arithmetical progression by .70 each time.

Thus, since money *doubles* at 5 *per cent.* in 14 years, it would become *threefold* in $\frac{14}{1.70}$ or eight years more, making 22 together; *fourfold*, in $\frac{14}{2.40}$ or six years more, or 28 years altogether; and so on.

See also Division II of our "Treatise on Associations for Provident Investment" (1847) p. 22, for the Mathematical Analysis.

TABLE Q.—ANNUITIES FOR TERMS OF YEARS.

I.—*Present value*, for a given term of years, of £100 *per annum*, payable at the *end* of each year.

Term	3 per cent.	5 per cent.	Term.	3 per cent.	5 per cent.
1	97.09	95.24	40	2311·48	1715.91
2	191.35	185.94	45	2451.87	1777.41
3	282.86	272.32	50	2572.98	1825.59
4	371.71	354.60	55	2677.44	1863.35
5	457.97	432.95	60	2767.56	1892.93
6	541.72	507.57	65	2845.29	1916.11
7	623.03	578.64	70	2912.34	1934.27
8	701.97	646.32	75	2970.18	1948.50
9	778.61	710.78	80	3020.08	1959.65
10	853.02	772.17	85	3063.12	1968.38
15	1193.79	1037.97	90	3100.24	1975.23
20	1487.75	1246.22	95	3132.27	1980.59
25	1741.31	1409.39	100	3159.89	1984.79
30	1960.04	1537.25			
35	2148.72	1637.42	Perpetuity.	3333.33	2000.00

II.—Amount that £100 *a-year*, paid at the end of each year, will accumulate to with *compound interest*, at the end of a given term of years.

Term.	3 per cent.	5 per cent.	Term.	3 per cent.	5 per cent.
1	100.00	100.00	35	6046.21	9032.03
2	203.00	205.00	40	7540.13	12079.98
3	309.09	315.25	45	9271.99	15970.02
4	418.36	431.01	50	11279.69	20934.80
5	530.91	552.56	55	13607.16	27271.26
6	646.84	680.19	60	16305.34	35358.37
7	766.25	814.20	65	19433.28	45679.80
8	889.23	954.91	70	23059.41	58852.85
9	1015.91	1102.66	75	27263.09	75665.37
10	1146.39	1257.79	80	32136.30	97122.88
15	1859.89	2157.86	85	37785.70	124508.71
20	2687.04	3306.60	90	44334.89	159460.73
25	3645.93	4772.71	95	51927.20	204069.35
30	4757.54	6643.88	100	60728.77	261002.52

Notes:—1.—To find the annuity which £100 will purchase, divide £100 by the amount in Table Q, moving the decimal point two places to the left. Thus, £100 will purchase for 10 years, at 3 per cent., an Annuity of (£100 ÷ 8.5302) or £11.72 per annum.

2.—*The Sinking Fund to produce £100 is, in like manner, the reciprocal of the amount of £100 a year, moving the Decimal point four places to the right. (See note 1 above.)*

3.—To calculate the *Commutation of Leases*, on one or more lives, into *Leases for* terms of years, this Table should be used in conjunction with Tables S and X. Thus, by Table S, at 5 per cent., the present value of a Lease, of which only one life is in existence (say a male aged 40) is £1411 per cent.: in Table Q, 5 per cent. column, the present value of an Annuity for 25 years is £1409 per cent.: therefore, the tabular equivalent term certain to a lease on a male life aged 40 is 25 years. A practical margin must however, be deducted to provide for the circumstance that Tables of Mortality are deduced from a large average of lives, and, therefore, require to be modified when calculations are made dependent on only 1, 2, or 3 lives. Leases on lives are never so good as the tabular rate for equivalent Terms certain.

4.—*For other rates of interest than 3 or 5 per cent., see Tables IX and X, p. 305, 306, Division II, Treatise on Associations for Provident Investment.* (7*s*. 6*d*.)

TABLE R.

RENEWAL FINES.

To find the Amount of Fine that should be paid for the privilege of Renewal in a Lease worth £100 a year. This is the same thing as the present Value of a *Deferred Term Annuity* of £100 to commence at the expiration of a present term of years.

EXAMPLE.—The present Value of the Renewal of an Annuity or Lease for 40 years, of which 15 are *expired*, is the present value of a *term Annuity* deferred 25 years, and is found by deducting *from* the present value of an Annuity for 40 years, the present Value of an Annuity for 25 years, which is the period remaining *unexpired* of the original lease.—(*See previous Table*, Q. I.)

TABLE S.

Showing the PRESENT VALUE of £100 a year, payable at the *beginning* of the year, for LIFE, according to the provisions of *Sect.* 12 of the *Act* 17 and 18 *Vict.*, c. 116. (p. 40, *Treatise on Copyholds.*)

[*If the Annuity be payable at the* END *of each year, deduct £*100.]

Age.	3 per cent.		5 per cent.		Age.	3 per cent.		5 per cent.	
	Males.	Females	Males.	Females		Males.	Females	Males.	Females
10	2420.4	2417.8	1753.4	1748.1	50	1462.7	1512.5	1218.3	1251.9
15	2322.3	2321.5	1705.6	1700.4	55	1288.9	1340.3	1097.5	1134.1
20	2223.3	2234.3	1656.6	1659.0	60	1105.7	1161.7	962.6	1005.2
*25	2127.0	2143.9	1609.6	1615.5	65	931.9	981.0	828.8	867.7
30	2019.4	2044.2	1553.9	1565.2	70	768.4	808.4	697.4	730.2
35	1899.5	1933.7	1488.2	1506.5	75	621.2	654.1	574.5	602.2
*40	1766.9	1810.5	1411.2	1437.3	80	495.7	523.7	466.1	490.4
45	1621.5	1671.5	1321.8	1354.1	85	394.1	418.7	375.8	397.7

* EXAMPLE.—The present Value of an income of £100 a year, payable at the beginning of every year of the existence of a male life aged 25, at 3 per cent. interest, is £2127; in like manner, the present value of £100 a year during the existence of a female life aged 40, at 5 per cent. interest, is £1437·3 or £1437. 6s.

NOTE.—To find the present Value of £100, payable at the end of the year in which any person may die, as for example, the *Single Premium* for an Assurance, or the *purchase-money of a Reversion* to £100, multiply the amount in the above Tables by .0291 if at 3 per cent., or .0476 if at 5 per cent., and subtract the product from £100. The result is the value.

EXAMPLE.—The present Value of £100 payable at death of a male life age 25, at 3 per cent., is £100 less (2127 × ·0291) or £100 less £61·9 = £38·1.

(*See also Tables IV. and V. at page* 67, "*Treatise on Copyholds.*")

TABLE T.

Showing the Present Value of the ADVOWSON of a Living of £100 a year *net*, after the death of the present Incumbent. (Under 17 & 18 *Vict. c.* 116, *s.* 12)

[*Deductions* should be made from the gross Value of the Living, for the Value of the Incumbent's *personal services*, or the stipend of a curate; also for the usual and any special Charges he may have to pay every year, &c.]

Present Incumbent's Age.	Interest 5 per cent.	Interest 7 per cent.	Present Incumbent's Age.	Interest 5 per cent.	Interest 7 per cent.
25	490.4	240.6	55	1002.5	574.5
30	546.1	272.2	60	1137.4	677.0
35	611.8	311.0	65	1271.2	777.9
40	688.8	359.2	*70	1402.6	888.8
45	778.2	416.9	75	1525.5	993.7
50	881.7	483.3	80	1633.9	1087.0

* EXAMPLE.—The advowson of a living of £100 a year net is worth £1402.6 or £1402. 12*s.*, if the age of the present Incumbent is 70, and interest of money be taken at 5 per cent.

NOTE.—This Table gives also the Present Value of a *Freehold Estate* in *Reversion*, after death of life in possession.

TABLE U.

NEXT PRESENTATIONS.

In practice, these are estimated in two ways:—

1°—If the successor's age be *not known now*, nor until the death of the present Incumbent; then the present value is that given in the following Table, wherein the age of the person to be presented hereafter is assumed to be then the *youngest possible*, viz., 25.

Present Incumbent's age.	Value of next Presentation to a living of £100 a year *net, after all deductions.*	
	5 per cent.	7 per cent.
25	375.9	201.90
30	418.5	228.42
35	468.9	260.98
40	527.0	301.72
45	597.2	349.85
50	676.0	403.81
55	768.4	482.10
60	872.4	568.11
65	973.8	652.78
70	1075.2	745.18
75	1168.6	833.85
80	1252.3	912.17

* EXAMPLE.—The Value of the next Presentation to a living of £100 a year net, is worth (at 7 per cent interest) £482·1, or £482. 2*s.*, if the present Incumbent's age is 55, and that of his successor when appointed 25.

2°—If, however, the next presentation is purchased with the view of presenting some particular person, whose age *is now known*, then the value of the presentation is found by deducting,—*from* the value of an annuity at his present age, according to Table S,—the value of an annuity on the *joint lives* of himself and the present Incumbent, according to Table X. (See Example p. 55, *Treatise on Copyholds.*)

This distinction should be remembered in submitting a Case to an Actuary.

The above are subject, however, to the practical deductions for Queen Anne's Bounty, &c

TABLE X.

Showing the present value of an ANNUITY of £100, on TWO JOINT LIVES, payable at the *beginning* of each year, under 17 and 18 *Vict. c.* 116. *s.* 12.

(If the Annuity be payable at the END *of each year, deduct £100 from the value in the following Table.)*

Ages.	10		15		20		25	
	3 per cent.	5 per cent.	3 per cent.	5 per cent.	3 per cent.	5 per cent.	3 per cent.	5 per cent.
80	508.7	477 7	506.1	475.4	505.1	473.0	503.0	471.2
75	616.2	570.9	612.6	562.5	610.9	563.3	607.5	560.5
70	767.7	695.3	762.3	690.7	759.5	684.9	754.3	680.6
65	929.9	825.1	922.2	818.8	917.6	815.2	909.6	808.8
60	1068.3	929.2	1058.1	921.0	1051.2	915.9	1040.2	907.3
55	1241.4	1058.3	1227.7	1047.8	1218.0	1035.5	1202.9	1024.2
50	1402.4	1171.4	1384.8	1158.6	1371.5	1149.2	1351.7	1134.9
45	1528.9	1252 9	1507.3	1239.7	1490.3	1228.1	1465.5	1208.8
40	1632.8	1315.5	1607.6	1298.1	1586.2	1284.4	1556.0	1264.2
35	1730.3	1373.0	1700.7	1353.6	1674.7	1337.5	1638.2	1314.2
30	1814.8	1421.0	1780.5	1399.2	1749.4	1380.8	1706.4	1354.6
25	1891.5	1463.8	1852.6	1439.9	1815.8	1419.2	1766.0	1390.0
20	1958.9	1506.9	1914.6	1480.9	1872.2	1457.7		
15	2020.6	1534.5	1970.9	1506.3				
10	2075.3	1564.5						

	30		35		40		45	
80	499.6	468.2	497.6	466.5	493.2	462.5	491.7	458.1
75	602.7	556.3	597.3	553.5	591.1	548.1	588.6	544.2
70	747.0	674.5	738.0	670.3	729.0	*662.7	724.1	656.7
65	899.3	800.5	886.6	793.9	873.6	779.3	864.3	772.5
60	1026.6	896.6	1015.0	887.7	996.8	869.2	981.1	858.1
55	1184.7	1010.5	1162.1	998.4	1136.7	979.3	1111.5	957.4
50	1328.0	1111.9	1298.1	1095.7	1263.0	1070.9	1226.6	1046.9
45	1435.7	1187 9	1404.4	1167.4	1359.1	1136 6	1310.4	1099.6
40	1519.2	1235 5	1474.7	1210.7	1419.1	1174.4		
35	1593.9	1286.0	1540.6	1256.7				
30	1654.4	1319.5						

TABLE X.

ANNUITIES DUE ON TWO JOINT LIVES.

(*Continued.*)

Ages.	50		55		60		65	
	3 per cent.	5 per cent.	3 per cent.	5 per cent.	3 per cent.	5 per cent.	3 per cent.	5 per cent.
80	488.6	455.6	472.3	444.5	450.7	425.3	436.0	412.5
75	582.1	539.1	558.0	518.4	527.8	492.0	504.7	472.4
70	711.8	647.2	678.5	621.7	634.6	584.3	598.7	554.6
65	843.0	756.5	794.5	717.1	733.6	666.5	681.2	624.1
60	948.6	834.3	882.5	786.3	804.4	723.2		
55	1065.1	924.2	980.0	863.3				
50	1164.3	1003.4						
	70		75		80			
80	405.9	385.9	363.8	347.8	328.6	315.8		
75	461.2	434.7	406.2	385.4				
70	533.4	501.8						

* EXAMPLE.—The Value of a next Presentation (at 5 per cent.) to a living of £100 a year for a life now aged 40, after death of Incumbent now aged 70, is equal to the value of the Annuity on the life 40 (Table S) - - - - = £1411.2
less the value on the Joint Lives 40 and 70 - - - - = 662.7
= £748.5

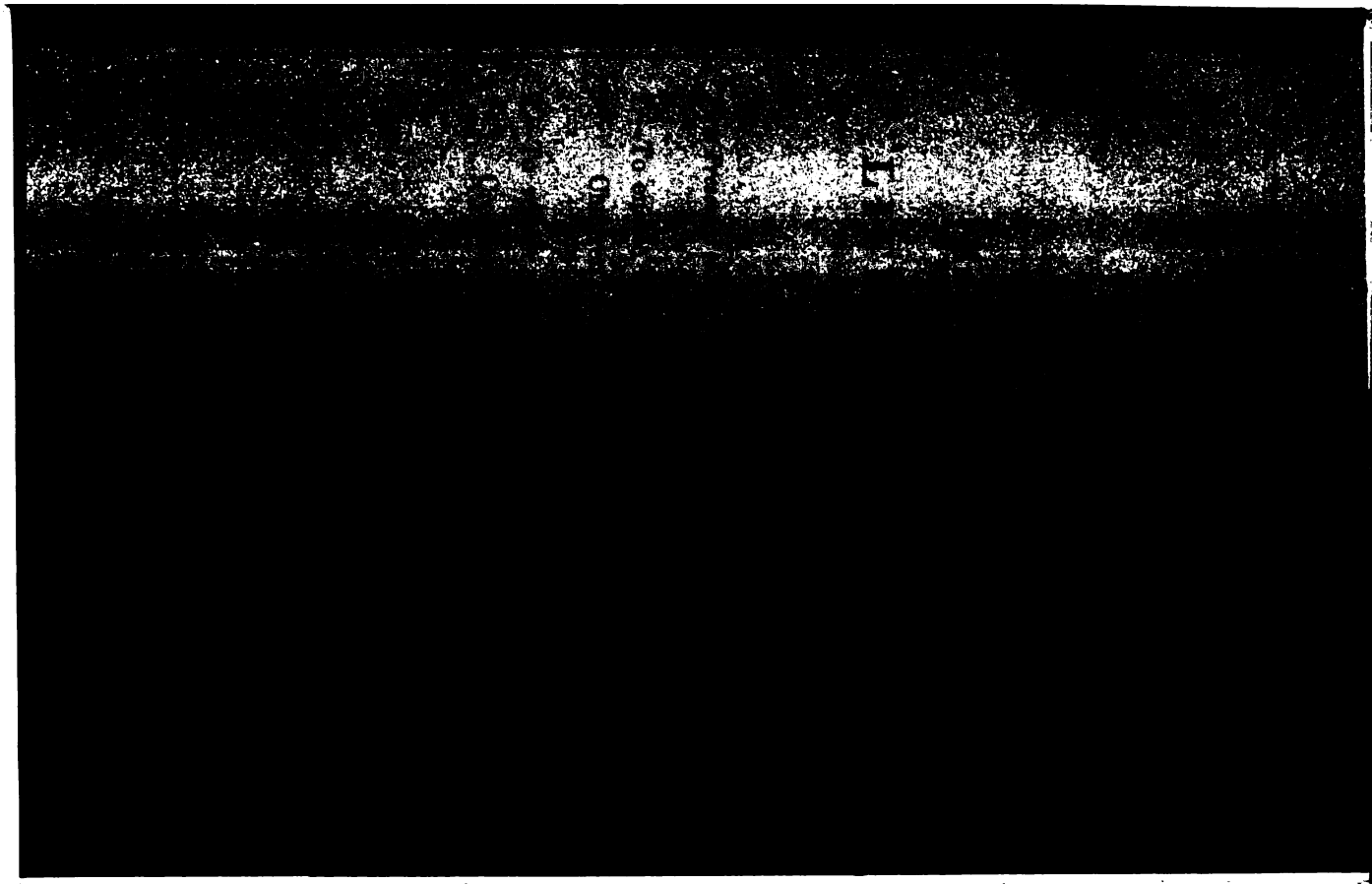
(Less deductions for Payments to Queen Anne's Bounty Office, &c.)

NOTE.—To find the present Value of a Lease of £100 for the *longest* of two lives, add together the amounts given in Table S for each life singly, and *deduct* the amount given in the above Table for the two *joint* lives.

EXAMPLE.—The Value of a Lease of £100 on the longest of two lives age 25 and 40, is (at 5 per cent.) £1756. 12s.—

For the Value of the Annuity at age 25 (Table S) = £1609.6
" " 40 " = 1411.2
3020.8
Less the Value on the Joint Lives - - = 1264.2
Balance - - = £1756.6

Where the income is considered due at the *end* of each year, £100 must be deducted from the value, and a proportionate part when half-yearly or quarterly.



Petition to Parliament.

To the Honourable the Commons of Great Britain and Ireland in Parliament assembled.

The humble Petition of ARTHUR SCRATCHLEY, Esquire, Master of Arts of the University of Cambridge, and others, Members of Life Assurance Societies.

HUMBLY SHEWETH,—That your Petitioners are deeply impressed with the urgent importance of additional security being afforded to those who have already endeavoured, or may hereafter endeavour, to effect provision for their Wives and families by way of Life Assurance. That at present a Policy of Life Assurance taken out with such object is liable for the debts of the Assurer, which may deprive his wife and family of any provision whatever. It appears to your Petitioners, that by the act of Marriage every man undertakes the distinct responsibility of providing, as far as may lie in his power, for his wife and children; and that if he incur other liabilities of a pecuniary character, his family have at least as great a right as any other creditor to require some provision to be secured to them by a Policy of Assurance; and that it is to the interest of the community at large that, where Assurances have been effected, the Assurer should have the power of making some portion of them specially available for his family without the uncertainty and expense of a Trust-deed. Your Petitioners further humbly submit that the principle has already been recognised by the Legislature to a limited extent in the Acts relating to Friendly Societies, and also in that relating to Government Life Assurance; and that it has been adopted by the *State of New York by an Act passed on the 1st of April*, 1840, enacting that any married woman by herself and in her name or in the name of any third person, with his assent as her trustee, may cause to be assured for her sole use the life of her husband for any definite period or for the term of his natural life; and that in case of her surviving her husband, the sum or net amount of the Assurance becoming due and payable by the terms of Assurance shall be payable to her, to and for her own use, free from the claims of the representatives of her husband or of any of his creditors; but that such exemption shall not apply where the amount of Premium paid annually exceeds three hundred dollars.

Your Petitioners further humbly submit that, while granting this boon to the wives and families of assured persons, it is of the highest importance (whatever opinion may be entertained as to the propriety of making "choses in action," generally assignable at law) that Policies of Assurance should be allowed to obtain their full value as commercial securities, by being made *assignable by simple Endorsement* like Bills of Exchange, without the necessity of the legal representatives of the deceased joining in the receipt for the sum assured.

Your Petitioners therefore humbly pray that your Honourable House will take the premises into your favourable consideration.

And your Petitioners will ever pray, &c.

1.—*Leading Article of the* "TIMES,"

2nd October, 1860.

"THE 'Report of the Registrar of Friendly Societies' contains the usual testimony to two great evils—one an involuntary evil and the other a voluntary—sickness and drinking. Every Friendly Society has two faces, which it puts on, one for its members and the other for Mr. Tidd Pratt. Its members are attracted to it partly, of course, by the natural foresight of human contingencies, but very much, also, by the pomp and merriment of its festivals, with their brass bands, flags, processions, and all the holiday paraphernalia, together with the temporary occupation of the 'Saracen's Head,' the 'Red Lion,' or the 'Flying Horse.' This is the face that it puts on for its healthy members; but for Mr. Tidd Pratt it puts on the face of sad calculation, expressive of precaution against the calamities to which our mortal state is liable, of judicious estimates of rates of sickness, and care to provide means and resources against the dark day.

"Sickness is the first difficulty that Mr. Tidd Pratt has to deal with. The great and sad fact of human sickness is the basis of all Friendly Societies, which are founded for the object of providing for the wants of the sick man out of the surplus earnings of the healthy man. But here an important question arises. How are you to define sickness? *What constitutes Temporary inability to labour?* This is a fundamental point to decide in laying down the scheme of a Friendly Society, and to ensure the success of its calculations—a correct estimate of sickness. If you are too rigid in defining it, you defeat the object of relief for which the Society is formed; if you are too lax in defining it, you occasion a too large and wholesale pull upon its funds, and so in time break up the Society. This is one great cause of the break-up of Friendly Societies—the disproportion of relieved sickness to the actual funds of the Societies. Fifty-two Friendly Societies broke up last year, most of them from this reason. This is a fatal mistake then; and the first point such Societies should look to is a correct estimate of sickness, in order to bring it within their calculations, and make it fit in with their resources. But this is by no means an easy thing to estimate—the amount of sickness which fairly prevents a man from working.

"'In practice,' says Mr. SCRATCHLEY, in the 10th edition of his treatise,* which Mr. Tidd Pratt quotes in this Report, 'it is found that certain degrees of ill-health do not produce immediate inability to work. Medical men affirm that labourers, who have not a Friendly Society to fall back upon, often go about their employment with disease of the heart, tubercles in the lungs, and other disorders of considerable severity. Among 120 Cornish miners in actual work, it was ascertained that only 63 had good health; the remainder being all the time suffering from incipient serious maladies.' A compromise is sometimes made under these circumstances, and 'men who have no sick money to draw, with the consent of the inspector or foreman, have their labour mitigated without stopping off work altogether.' Some distinction, then, is necessary, if these Societies are to fulfil their engagements, between '*Friendly Societies' sickness*' and '*Medical sickness.*' That is to say, the ill-health of a labouring man cannot be estimated exactly in the same way in which that of one of the upper classes of society would be. There is a difference of standard, and for this necessary reason, that a man who is comfortably off can afford to be more indulgent to his health than a poor man can. This is one of the trials of poverty, one of the grievances which attach to it as a natural dispensation, and the lot of the majority of the human race—viz., that a man must often work when he is not in sound working health. It seems hard, but there is nothing so inexorable as the necessity of society and the law which regulates the extent of such indulgence; the simple fact being this, that society, taking it as a whole, rich and poor together, has not wealth enough to allow more than a certain amount of consideration to health upon a large scale. Labour is the wealth of society. It is a pure case of compromise between two great laws, an attempt to escape which would issue in injury to the labourer himself; for he, in common with the whole community, depends upon the amount of the sum total of labour. We may add, that the force of habit makes such a necessity, perhaps, less of a trial than at first sight it would appear to be. We see men everywhere working in spite of health—they choose to do so; the difficulty is to make them leave off work; they say they will

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* *Treatise on Associations for Provident Investment*, by ARTHUR SCRATCHLEY, M.A.,

Corresponding Member of the Royal Commission of Belgium on Statistics and Administrative Finance; One of the Examiners (1850 *and* 1851) *of the Institute of Actuaries of Great Britain and Ireland; Late Fellow and Sadlerian Lecturer of Queens' College, Cambridge; Consulting Actuary to the Tithe Trust; one of the Actuaries authorised to certify Friendly Societies, etc.*

New Edition, in Three Divisions, 1050 pp., £1 7*s.* 6*d.* Published by *Longmans*, Paternoster-row; and *Laytons*, 150, Fleet-street.

Division I.—*On Savings Banks* and *Banks of Deposit.*

" II.—*Building Societies, Tontines*, and *Colonization.* 3rd Edition.

" III.—*Friendly Societies*, and *Life Assurance Societies.* 10th Edition,

The work contains Rules, Tables, Acts of Parliament, and numerous Statistics for the use of Trustees, Managers, Solicitors, and other persons interested in Industrial Associations.

3.—*From the* "WESTMINSTER REVIEW," *January*, 1861.

"Mr. SCRATCHLEY, who may be looked upon as the standard author on such subjects, has collected into two volumes his various works on the investments of the poorer classes; and, by doing so, has brought together an amount of information that can hardly be with safety neglected by the directors or members of these important and beneficial enterprises. A twenty years' experience as a practical adviser on the subject, and an extended correspondence with every country in which these institutions have taken any root, has put him in a position to speak with authority on all points connected with them. His first volume is exclusively devoted to the subject of *Savings Banks*, and contains a most full review of their history, of the errors which in past times have infected their constitution, of the sad frauds which have so greatly interfered with their popularity and usefulness, as well as a full system of rules by which their recurrence may be avoided. The minute detail into which he pursues his subject leaves little to desire. His rare industry and laborious application alone could have brought together so exhaustive a collection of every fact worthy of being known on these important subjects.

"The various projects of Government supervision and guarantee which have been suggested to obviate such lamentable frauds as those which gave an evil fame to the Cuffe Street and Rochdale Savings Banks, are discussed with great discrimination. . . . . It is greatly to be hoped that the reviving confidence of the working classes in these institutions may not again meet with such severe checks. Few things, we are sure, will tend more unequivocally to this result than a general acquaintance with the warning contained in this valuable Treatise.

"The same breadth of information and minute acquaintance with the subject characterize Mr. Scratchley's *Treatise on Building Societies*. . . . . These volumes abound in valuable statistical and working tables, which of themselves would entitle them to a place on the committee-table of every Benefit Society and Savings Bank."

4.—*From the* "LONDON QUARTERLY REVIEW," *October*, 1860.

"The subjects discussed are of great importance in our very complex condition of society, and the author deserves the thanks of the public for his luminous statements and judicious suggestions. The remarks on the moral urgency of life assurance ought to be seriously perused by our young men, by fathers of families, and, in fact, by all whose family incomes are dependent upon the life and health of an individual. The work ought to be found on the shelves of every educational institution and reading-room."

5.—*From* "L'ETUDE SUR LES CAISSES D'EPARGNE," *by M. Auguste Visschers, Membre du Conseil des Mines, Belgique.*

"D'un seul mot, nous pouvons, pour compléter notre pensée, renvoyer le lecteur au remarquable ouvrage de M. Scratchley. On y trouvera, entre autres, l'analyse de l'enquête ouverte, en 1858, devant un comité de la Chambre des Communes (pp. 17 et suiv.); l'histoire des fraudes commises, de 1848 à 1851, dans les caisses d'épargne Anglaises (pp. 49 et suiv.); les remèdes proposés (pp. 76 et suiv.); les améliorations à apporter dans le régime intérieur des caisses d'épargne (pp. 90 et suiv.); un examen des causes qui ont produit le déficit actuel dans les fonds des caisses d'épargne d'Angleterre (pp. 115 et suiv.); un plan de réorganisation financière de ces institutions (pp. 165 et suiv.); l'exposé du projet tendant à utiliser les bureaux de poste comme auxiliaires des caisses d'épargne (pp. 215 et suiv.); l'examen du système de banques de dépot, ou de caisses d'épargne indépendantes en dehors de la garantie du Gouvernement (pp. 264 et suiv.); enfin, l'exposé et la discussion du projet de M. Gladstone, en 1860 (pp. 295 et suiv.)."

6.—*From Article on Building Societies in* "HOUSEHOLD WORDS," *November*, 1851.

"For the descriptions we have been able to give, we are indebted to the perusal of two books, published in the present year, which we urge upon the study of all those to whom is entrusted the responsibility of taking active part in the formation or management of Building and Land Societies. . . . . For the Finance, and all the minute details which go to the full practical understanding and management of these undertakings; for a distinct marking of the rocks and shoals that lie in the projector's way, and for the tracing of his proper track, we refer the reader to the new edition, now published, of a work on '*Industrial Investment and Emigration*,' by Mr. SCRATCHLEY."

7.—*From the* "EDINBURGH REVIEW," *April*, 1852.

"It is obvious that the desirableness of *Industrial Societies* as a mode of investment for the humbler classes, must depend entirely upon the soundness of the principles upon which they are based, and the strictness with which these principles are adhered to in the management. Much money has, no doubt, been lost and spirited away in these undertakings, and none should be trusted by the poor that are not duly certified and registered. But, when this precaution is observed, we believe they deserve the encouragement and favour they have received. Mr. Scratchley's work is a careful exposition of the rules which should guide their constitution and management, drawn up by a competent and experienced man."

From the "JOURNAL DES ECONOMISTES," *April*, 1861.

"M. SCRATCHLEY a publié, sur les institutions de prévoyance, un ouvrage qui a fait un véritable sensation de l'autre côté du détroit. Chacun sait bien, dans ce pays où l'actif des caisses d'épargne s'élève à plus de 900 millions, et celui des *Friendly Societies* à près de 300, la compétence toute particulière de M. Scratchley."

From the same Journal, October, 1854. (Review of Division II.).

"Ce livrè, d'un caractère essentiellement pratique, et qui ne s'adresse en apparence qu'à un petit nombre de lecteurs, a obtenu en Angleterre le succès assuré aux ouvrages utiles, et dont il était très digne. . . . . M. Scratchley est bien au courant de l'économie politique : il en connait les principés et les dévelloppements et les applique sans prétention et sans effort, dans les deductions claires et rigoreuses que contient son livre. La partie purement arithmetique de l'ouvrage est placée dans un appendice important oú se trouvent non-seulement des démonstrations théoriques, mais des tableaux et des comptes-faits, propres à éclairer les practiciens proprement dits pour lesquels ce livre, écrit par un homme dont l'intelligence et l'instruction sont supérieures au sujet qu'il a traité, est un guide sûr et éclairé. Puissons-nous avoir promptement besoin en France d'un livre pareil ; et lorsque nous en aurons besoin, puissons-nous trouver un auteur qui l'écrive avec autant de distinction, de clarté et de sens pratique, que M. Scratchley !"

9.—*From the* "READER," *July* 23, 1864.

"The existence of savings banks dates from the beginning of the century ; but there was no institution of the kind in London until the year 1816, when the St. Martin's Place Savings Bank, the deposits in which now amount to upwards of a million-and-a half, was begun 'in a very humble way in a room over a butcher's shop in Panton Street, Haymarket.' From that time the progress has been rapid. Those who wish to trace it in detail cannot do better than refer to Mr. Scratchley's volumes. They will find in them the fullest and most accurate information, not only upon the particular point we are dealing with, but upon the whole subject of provident investments of every description and for every class."

10.—*From the* "RAILWAY & COMMERCIAL ALMANACK," *for* 1865.

"The ignorance existing upon this very important point (the laws of sickness) is not confined to the founders and managers of societies. The differences of opinion existing amongst actuaries and scientific men are perfectly astounding. The laws of mortality are defined clearly enough,—those of sickness are almost *in nubibus*. The only really practical approach to an estimate has

been made by Mr. ARTHUR SCRATCHLEY, to whose labours, it is fair to say, the public owes more in connexion with this subject than to those of any other living writer.

"We feel bound to add, however, that besides his valuable contributions towards the elaboration of a true law of sickness, Mr. Scratchley has in other important respects done more than any other man to diminish the difficulties of such a voluntary improvement in the system of Friendly Societies, as would impart to them the necessary quality of security without minimising the area of their benefits. He has laid down a code of excellent precautions against fraud of all kinds; he has not only suggested, but, through the operation of the Friendly Societies' Institute, actually established, an efficient channel of audit and revision. Many years ago he powerfully advocated the grant of small assurances through the medium of the savings banks; and with respect to charges, benefits, management of funds, limitation of allowances according to age, and other vital points, he has indicated a course of proceeding, which, whilst open to discussion on some of its details, is the most searching, complete, and useful that has hitherto been propounded, because, whilst pregnant with facts, it seems scrupulously to eschew fancy. We have no doubt that, should the whole subject of Friendly Societies be ever comprehensively dealt with, the results arrived at and proved by this eminent actuary will form the basis of important action."

11.—*From* "LE PAUPERISME ET LES ASSOCIATIONS DE PREVOYANCE," *par Emile Laurent.* (*Ouvrage couronné par l'Institut*). *2nd Edition*, 2 *vols.*, Paris, 1865.

"Lord Shelburne, aujourd'hui marquis de Lansdowne, a proposé dans une des sessions derniéres un bill—dont le type se retrouve du reste dans un projet présenté en 1818.—Les hommes spéciaux d'Angleterre, et notamment MM. Tidd-Pratt et Scratchley, attachent une importance tout à fait particuliére à ce bill et désirent bien vivement que son examen soit repris. Le bill Gladstone, qui a été, nous venons de le voir, l'occasion d'une si grand orage, est lui-même,—détail peu connu en France,—la reproduction d'un bill présenté à la Chambre des communes, en 1807, par M. Whitbread, bill qui a même inspiré aussi le fameux acte relatif aux *post-office-savings-banks.*—Ce bill de 1807 est commenté tout au long dans le *Traité* de M. Scratchley sur les *savings-banks*, p. 239 à 250."

"En Angleterre, les plus grandes efforts des hommes spéciaux ont porté—sans succès jusqu'à présent, nous devons le dire—vers l'affiliation des Friendly Societies aux Compagnies speciales d'Assurances afin de mieux garantir tous les risques. Le bill présenté en Juillet 1854 par M. Fitzgerald, à l'instigation de M. Scratchley, contient la clause suivante:—Toute Friendly Society ou toute Compagnie d'Assurances sur la vie peut, avec le con-

sentement d'un Actuary, et d' après tels termes qu'il approuvera, contracter avec un Friendly Society quelle qu'elle soit, l'engagement de prendre sur son compte toutes les obligations d'une autre Société, &c. Tel est donc en Angleterre l'avis des hommes qui font le plus autorité en ces matières.

"Pour ceux qui repousseraient complétement la forme actuelle de la participation des classes possédantes et des autres classes dans les cadres des associations de prévoyance,—nous allons dire comment en Angleterre un homme très-pratique, connaissant bien le caractère de l'ouvrier, en même temps que le génie de l'institution mutuelle, comprend la juxtaposition dont il s'agit et la conseille à ses compatriotes."

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OPINIONS OF THE PRESS.

1.—"LAW TIMES," *May* 14*th*, 1864.

"Mr. Scratchley has compressed into very small compass, not only an alphabetical digest of about 200 cases relating to life assurance, but also a lengthened argument advocating some amendments in the law that he considers desirable, with a draft of a Bill for carrying them out. Its objects are explained to be to enable policies of life assurance to be specially secured for the widow and children of an assurer by nomination, without the necessity of a trust-deed, and to render policies of assurance assignable at law, and that by simple indorsement.

"Arguing from the importance of life assurance to those desirous of making provision for their families, and the legal difficulties at present incident to the contract, Mr. Scratchley urges their removal by the adoption of a principle of nomination. He desires to place the nominor in the same position as if he had made the policy the subject of a trust, however small the amount

of his policy may be. He points out the circumstances under which an assurer can now settle his policy, and shows that a poor man with a small policy cannot possibly avail himself of that mode of providing for his family. The author recommends that the assurance societies should be empowered to act as trustees for the children who may be nominated, should they be under age when the death of the assured happens. For securing the interests of creditors, Mr. Scratchley further proposes that policies should be rendered assignable at law, and that the assignment may be made either in the ordinary form, or by an indorsement on the policy; but that, in either case, notice of the assignment must be acknowledged by the assurance office on the back of the policy. It is probable, as the author suggests, that these amendments in the law would materially extend the beneficial operation of life assurance.

"The Bill by which they are proposed to be effected appears to have been drawn with care. It provides that the nomination will be rendered void by the bankruptcy of the nominor within twelve months from its date; but that after the expiration of that period future bankruptcy will not affect the rights of the nominee, and it secures the revenue against loss by obliging the companies to collect and pay the probate and legacy duties. For assignment by indorsement a simple form in columns is provided.

"Incidentally, we learn an interesting fact respecting the Chancellor of the Exchequer's Bill for Government Assurances, which we fancy cannot be generally known, *viz.*, that Mr. Gladstone's Bill is a reproduction of one introduced by the late Mr. Whitbread, M.P., into the House of Commons, and approved by that branch of the Legislature, in the year 1807. For further information on this point we are referred to the 1860 edition of our author's Treatise on Savings Banks.

"The portion, however, of Mr. Scratchley's handy-book which will be of most service to legal practitioners is that which gives an alphabetical digest of the present law on the subject of life assurance. How much such a work was required may be gathered from the fact that one-half of the case law contained in this handy-book is so recent as not to be included in the last published formal treatise on the subject, brought out only a few years ago. The arrangement, though as a matter of course very compressed, is very convenient for practical purposes. The cases are marshalled under the headings most convenient for reference; the leading points are printed in large type; then in small type is subjoined a note of the history of the cases in which the point has been established, with an extract from the judges' remarks in delivering their opinion, or some apposite practical observation. The cases upon 'Amalgamations' are cited. The important points of 'Forfeiture' and 'Fraud' are also discussed, and the recent leading case is cited at length. Insurable Interests are also discussed. In reference to Indisputability, the author recom

mends that 'policies of a modified indisputable form should be granted, to become unchallengeable after having been five years in existence. Of course, no policy, however framed, can be sustained if fraudulently obtained; but it is a valuable improvement in life assurance practice for the offices to renounce their vexatious power of resisting the payment on the ground of error without fraud. If it causes them to be more vigilant in inquiry, so much the better.' All the cases appear to be digested to the very latest date, and the American, Scotch, and Irish authorities have not been overlooked. Though Mr. Scratchley disclaims any intention to do more than to provide a handy-book for non-professional readers, especially the agents and policy-holders of life offices, the work is one which will be found exceedingly useful to the Legal Profession, as it meets a want hitherto entirely unsupplied."

2.—"LAW MAGAZINE AND REVIEW," *May*, 1864.

"The title of this little 2*s*. 6*d*. book points out its use, and the name of Mr. Scratchley is sufficient to guarantee its value."

3.—"JURIST," *August* 13, 1864.

"In the small compass of thirty-five pages, Mr. Scratchley has digested nearly 200 cases relating to life assurance, and placed them under their respective heads in alphabetical order. Although intended for the non-professional reader, there is little doubt of its proving useful to the lawyer, while its popular element, cheapness, will not be objected to by either party. Mr. Scratchley has in view the amendment of the law, as it bears upon life assurance generally, and has embodied his proposed reforms in the draft of a bill, which we will give entire, and refer the reader to the Handy-Book itself for the author's comments."

4.—"SOLICITORS' JOURNAL," *April* 16*th*, 1864.

"The main design of this publication is to illustrate and explain the objects of a bill proposed by the author, for enabling policies of life assurance to be specially secured for the widow and children of an assurer by nomination, without the necessity of a trust deed, and for rendering policies of assurance assignable at law, and that by simple endorsement. For the better understanding of the subject, and with the view of making some suggestions for the amendment of the law as it bears upon life assurance generally, a concise alphabetical digest of the leading cases, with comments upon the principles involved in and decided by them, has been added. The work has been prepared chiefly for non-professional aders, who may be interested in the subject of life assurance, especially for agents and policy-holders in life offices."

5.—" Deutshce Versicherungs-Zeitung," *Berlin, 17th April,* 1864.

" Mr. A. Scratchley, einer unserer gediegensten Actuare, Verfasser mehrerer Werke über Versicherungs-und Wohlthätigheits-Anstalten, hat unter dem Titel: 'Lebens-Versicherungs-Gesetz' (Life Assurance Law) eine Zusammenstellung von Entscheidungen verschiedener englischer Gerichtshöfe über wichtige, die Lebensversicherung berührende Streitpunkte herausgegeben. Das Buch enthält beinahe 200 Processe. Im ersten Capitel erläutert Herr Scratchley den Zweck eines Gesetzentwurfes, welchen er dem Parlament einzureichen beabsichtigt. Nach den jetzt bestehenden Gesetzen kann die Versicherungssumme aus einer vom Familienvater zu Gunsten seiner Familie ausgestellten Police von den etwaigen Gläubigern des Versicherten in Anspruch genommen werden. Es leuchtet also ein, dass durch die Versicherung die Absicht des Versicherten nur dann erlangt werden kann, wenn er bis zu seinem Ableben in guten und geregelten Verhältnissen geblieben ist. Hier wünscht Herr Scratchley Reformen herbeigeführt und im Wege der Gesetzgebung derartige, zu Gunsten der eigenen Familien ausgestellte Policen von den Geschäftszufälligkeiten ausgeschlossen zu sehen. Durch die Adoption dieses Entwurfes würde die Lebensversicherung unter den kleinen speculativen Handelsleuten bedeutend gewinnen. Bisher waren dergleichen Leute zur Versicherung ihres Lebens nicht zu bewegen, weil bei einem etwaigen Vermögenswechsel die Versicherungssumme stets ihren Glaübigern zugesprochen wurde."

6.—" Le Droit Commercial," *Paris, 7th June,* 1864.

Les Assurances sur la vie. (1)

" Le développement pratique qu'ont reçu en Angleterre les assurances sur la vie et la direction qu'elles y ont créée dans les habitudes du public anglais n'ont pas été sans exercer une certaine influence dans notre pays, si l'on en juge par le nombre des affaires qui s'y traitent dans toutes les conditions possibles de la vie. Enfin l'immense intérêt qu'a surexcité autour d'elle l'affaire du procès criminel de La Pommerais, nous fait un devoir de signaler à nos lecteurs quelques points particuliers de la législation anglaise. On se rappelle d'ailleurs que parmi les compagnies qui avaient contracté des assurances sur la tête de madame de Pauw pour diverses sommes formant entre elles un ensemble de 550,000 fr. figurait aussi une compagnie anglaise, *the Gresham,* dont la police contenait des dispositions toutes particulières.

(1) Nous avons puisé nos renseignements dans un excellent manuel récemment publié à Londres, et qui nous parait être un guide très-sûr et très-pratique à recommander aussi bien aux compagnies d'assurance qu'aux jurisconsultes et aux hommes du monde. Voici son titre: *Handy Book on Life Assurance Law, by Arthur Scratchley, barrister-at-law, author of the Treatises on Savings Banks and Building Societies.* A Londres, chez Stevens, Sons, libraires, 1864. Prix: 2 schill. 6 pence.

" Ce ne sera pas sans étonnement que l'on apprendra que la législation anglaise quoique les mœurs et les lois (2) de ce pays y aient beaucoup encouragé ce genre d'institutions, contient des défectuosités qui n'existent pas chez nous ; et sans avoir l'intention de marquer ici des préférences en faveur des compagnies de l'un ou de l'autre des deux pays, nous de pouvons cependant taire qu en 1862, une pétition signée par sept cent cinquante membres de sociétés d'assurance sur la vie fut présentée au Parlement anglais par M. Hibbert, qui demandait à faire introduire dans le régime des assurances certaines améliorations dont nous jouissons depuis longtemps dans notre pays. On peut juger de l'importance des réformes demandées par l'énumération de certaines propositions du projet de loi anglais.

" Ainsi l'on demandait que le titulaire d'une police eût le pouvoir de nommer sa femme ou ses enfants pour recevoir l'argent assuré par la police.

" Voici le motif de cette proposition : Un homme engagé dans les affaires recueille, par sa profession, un revenu d'une nature précaire, en ce sens qu'il repose sur la vie de cet homme. Dans l'état actuel de la loi, s'il vient à mourir insolvable ou qu'il le devienne pendant sa vie, il ne pourra pas laisser un morceau de pain à sa femme et à ses enfants, car la police qu'il a souscrite étant considérée comme *chose in action* ou droit mobilier, et appartenant de droit au mari, elle devient alors, au milieu de la déroute, la propriété de ses créanciers, à l'exclusion de sa veuve et de ses enfants, qui cependant, en vue d'assurer l'avenir de leur existence, avaient partagé en commun avec le mari les sacrifices qu'exigeait le payement annuel des primes. C'est à cette lacune importante de la législation anglaise que n'avaient pas manqué de parer, dans un pays ardent pour les grandes enterprises, les législateurs de l'Etat de New-York au moyen de la loi du 1er avril 1840. Il en a été de même dans la Nouvelle-Galles du Sud, aux termes d'un acte de décembre 1862. En conséquence, les pétitionnaires, d'accord en cela avec les lois de l'humanité, demandaient que le bénéfice de la police pût aller directement à la veuve et à ses enfants au moyen du pouvoir d'inscrire dans la police les noms de la femme et des enfants du porteur béneficiaire.

" Une autre proposition non moins importante avait pour but de rendre transférable une police par la simple voie de l'endossement, comme dans les effets de commerce, sans qu'il fût besoin de faire intervenir au décès de l'assuré les représentants de ce dernier venant donner quittance de la somme assurée.

" La nécessité de cette amélioration se justifiait au point de vue commercial. En effet, dans la loi anglaise, une police d'assurance est considérée comme *chose in action*, c'est-à-dire un droit mobilier

(2) En effet la loi d'impôt sur le revenu (54, *of the Income Tax Act* 16 *and* 17 *Vict.* c. 34, p. 58) exonere de l'income taxe l'argent payé comme prime d'assurance sur la vie de l'assuré ou de sa femme. C'est le sixième du revenu annuel qui est pris comme base de l'exonération. La loi anglaise récompense ainsi la prévoyance et la sagesse du père de famille.

qui ne peut être recouvré que par une action judiciaire ; de là cette dénomination technique. Or, aux termes des règles strictes du droit commun (*Common Law*), les *choses in action* ne peuvent être transférées, parce que l'on pense que ce serait une source trop fréquente de procès si l'on pouvait céder à un étranger le droit d'agir devant la loi. Aussi est-ce motif que le mode de céder une *chose in action* est de la nature du mandat, qui autorise le cessionnaire à faire usage du nom du cédant au moment de recouvrer la dette. Il est vrai que les Cours d'équité, pour corriger la rigueur du droit, ont facilité le transfert de la propriété en permettant la cession d'une *chose in action* aussi directement qu'une *chose in possession*. Néanmoins, il n'en a pas moins été reconnu nécessaire qu'au décès de l'assuré l'action en payement devait être introduite au nom des représentants légaux de l'assuré, ce que oblige alors les compagnies qui veulent payer régulièrement à demander deux quittances, d'abord celle des héritiers ou représentants de l'assuré, et ensuite celle du cessionnaire.

" On comprend dès lors l'importance que chacun attachait au bénéfice de l'endossement commercial, qui permettrait aux compagnies de régler directement avec le porteur régulièrement cessionnaire d'une police, et sans l'intervention coûteuse des représentants d'une succession. D'un autre côté, les créanciers de l'assuré y réaliseraient cet avantage de pouvoir obtener d'avance de leur débiteur une garantie du crédit qu'ils pourraient lui faire.

" Il ne faut pas d'ailleurs omettre de dire que l'endossement, dans ce cas, ne devait produire son effet complet qu'autant qu'il aurait été accepté par la Compagnie d'assurance, et que la mention en eût été faite sur la police elle-même. C'était évidemment une amélioration, car, dans l'état actuel de la loi anglaise, le fait des cessionnaires qui notifient la cession à l'assurance n'établit pas de différence quant aux parties au nom desquelles devra être portée l'action ; toutefois, il est nécessaire de notifier la cession pour créer une antériorité en cas de déconfiture ou de faillite de l'assuré. A défaut de cette notification, la Cour des faillites peut ordonner la vente de la police au profit de la masse.

" Il ne faudrait pas cependant induire de cette pétition au Parlement anglais que la législation y fût tout à fait imparfaite dans ce pays, car c'est là que nos compagnies françaises ont été puiser elles mêmes les meilleurs précédents en matière d'assurance. La législation anglaise est basée sur le droit commun le plus rationnel, et les principes qu'elle admet ne pourraient être récusés par aucune des nations progressives. Nous en avons vu les preuves dans le digeste, ou résumé encyclopédique que M. Scratchley a joint à ses considérations préliminaires sur les améliorations à introduire dans la loi anglaise sur les assurances. A l'appui de chaque fait classé dans un ordre alphabétique, l'on trouve des documents précieux de la jurisprudence anglaise. Nous les énumérons ici, dans l'hypothèse que chacun pourrait y retrouver, en se réfèrant au livre, la solution d'une question qui l'interesse :

L'agence vis-à-vis de l'assuré, les fusions de compagnies d'assurance, la faillite, les réticenses, le contrat d'assurance, le créancier, la mort, le dette, le débiteur, le legs, les maladies, les primes extrà, les faux, la fraude, la loi Gambling, les héritiers, le mari, la loi d'impôt sur le revenu, la police non contestable, l'enfance, l'intérêt de la vie, le prêt, la matérialité ; le médecin assistant, le faux rapport, le meurtre, les services mutuels, le père, la police.

" Sous ce dernier chapitre nous devons emprunter à l'auteur du manuel les citations suivantes, qui sont motivées par une certaine analogie avec l'affaire de La Pommerais.

" § 83. 'Si une personne contracte une assurance sur la vie, et que postérieurement el commette un crime capital, et qu'après la condamnation elle soit exécutée, ses représentants et succession ne pourront dans ce cas recouvrer la somme assurée par la police.' Cette doctrine est confirmée par un arrêt rendu par la Chambre des lords dans l'espèce de la *Société amicale* contre Bolland dans une police faite sur la vie de Fauntleroy, qui fut pendu pour crime en 1824.

" § 91. 'Dans le cas où la personne assurée a été assassinée dans le but d'obtenir et de réaliser le bénéfice de la police, la police doit être déclarée nulle.'

" A l'appui de ce principe, le manuel cite l'affaire de la Société d'assurance du prince de Galles contre Palmer, cet illustre empoisonneur qui fit assurer plusieurs des siens pour des sommes considérables avant de les empoisonner. (1858. *The Rugeley murders.*)

" Les autres mots du digeste sont : les primes, la réassurance, le rétablissement de la police après déchéance encourue, le sceau, les fausses indications, les mandataires, la garantie, la femme.

" Nous ne terminerons pas cet aperçu sans proclamer bien haut que, quelque graves qu'aient pu être les combinaisons de convoitise et de cupidité qui ont germé dans l'imagination déréglée de certains scélérats, et qui, Dieu merci ! ont toujours trouvé leur juste châtiment l'assurance sur la vie n'en est pas moins un acte moral et de sage prévoyance.

" De bons esprits l'ont dit déjà avant nous, et nous répétons avec M. de Courcy : 'l'assurance sur la vie, qui est un devoir pour le père de famille sans fortune exerçant une profession libérale, est aussi un acte de sage et paternelle administration pour le propriétaire, soit qu'il veuille préserver de la division son domaine d'affection, soit qu'il n'ait d'autre but que d'augmenter le patrimoine de ses enfants et de faciliter le partage de sa succession."

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